LIGHTSTREAM®™

SOLAR®™

High-end compositing software

USER GUIDE

USER MANUAL

Solar SE

Version 2011

DRAFT VERSION
FOR MORE HELP VISIT:

email: support@lightstream24.com

web: www.lightstream24.com/forum/

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1. Introduction

1.1. Welcome

We are extremely excited to introduce our new family of next generation postproduction tools. After almost 5 years of development and testing we are pleased to present to you:
SOLAR – a High-end compositing software

1.2. About SOLAR

Solar is available and distributed in two versions, depending on your needs and budget.

SOLAR 2011

Powerful multiflow nodal-based compositing software. Includes over 150 powerful creation, transforming, color correction, compositing tools and special effects. Comes with integrated professional node-based Compositing User Interface. Contains all the great features of the base version plus advanced timeline editing and 35 additional tools and effects to extend your postproduction toolkit.

SOLAR 2011 SE

Base version of our compositing software. Offers access to all key high end tools for an affordable price. Includes over 100 powerful creation, transforming, color correction, compositing tools and special effects. Comes with the same integrated professional node-based Compositing User Interface as main Solar version. Take the next step, enter the world of ultimate visual effects!

2. Installation

2.1. Hardware Requirements

Basic hardware requirements to run SOLAR software:

64 Bit Windows Operating System (Windows 7 (recommended), Windows VISTA, Windows XP)
Minimum 1024 MB of RAM
1GB of available disk space to run the software

NVIDIA graphics Card with CUDA Support – SOLAR software won't run without an nvidia card without CUDA support – http://www.nvidia.com/object/cuda_gpus.html

2.2. Please make sure you have the latest drivers for your graphics card .

2.3. Install Instructions

- Doubleclick on the solar installer file, usually named „Solar_Setup.exe"

- Follow the on screen install instructions: read and accept the software license agreement**,** choose your install location and proceed

- after installation doubleclick on the Solar shortcut on your desktop to launch the software

2.4. License

After you launch SOLAR you will be asked to enter your license key – both trial and full versions require a license.

You can obtain a license by visiting www.lightstream24.com

3. SOLAR Walkthrough

3.1. Meet SOLAR

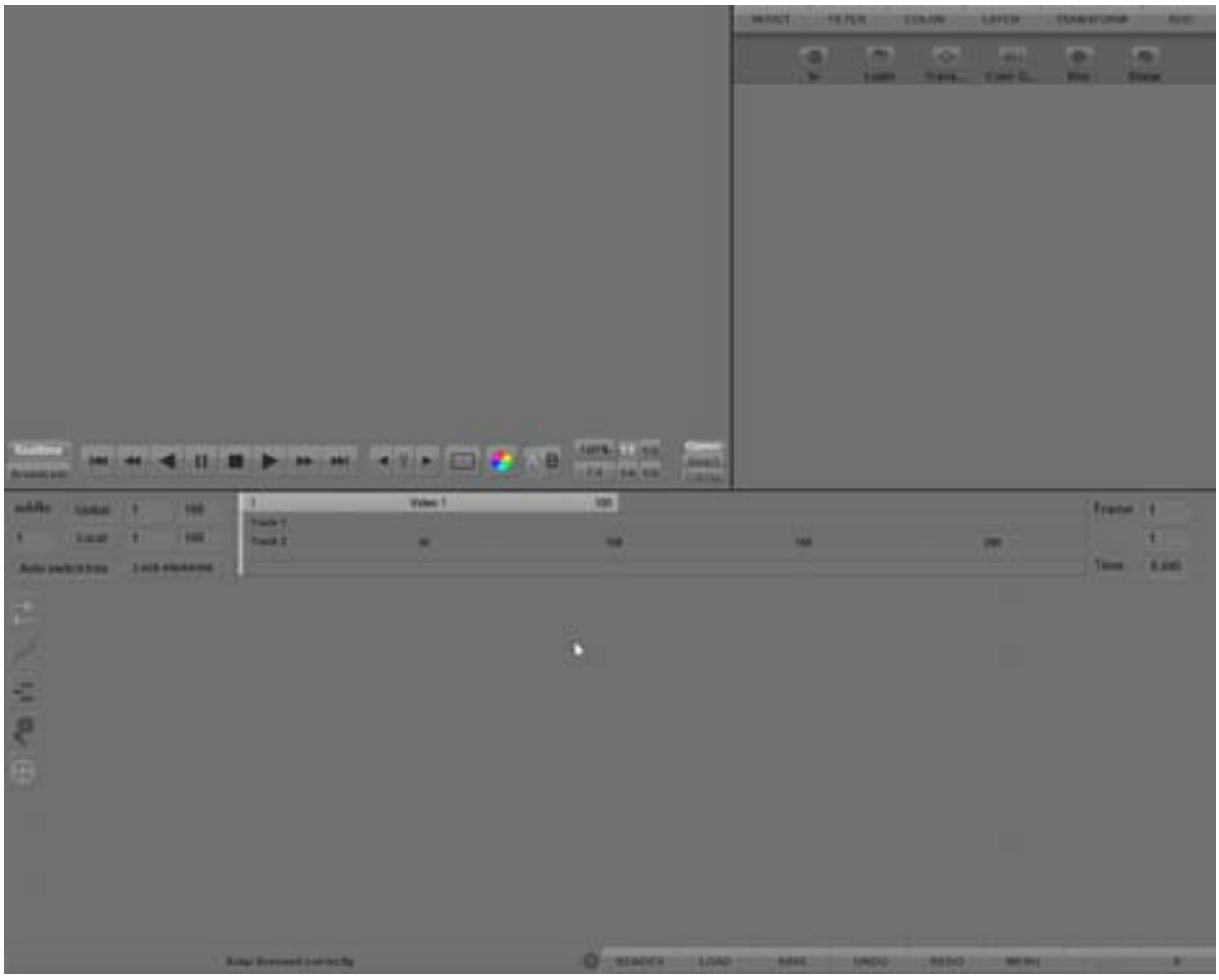
SOLAR is an advanced mutiflow nodal based tool offering complete set of tools for real time special effects and video enhancement.

We compiled a brief walkthrough to help you familiarize yourself with Solar basics.

For more help please visit www.lightstream24.com

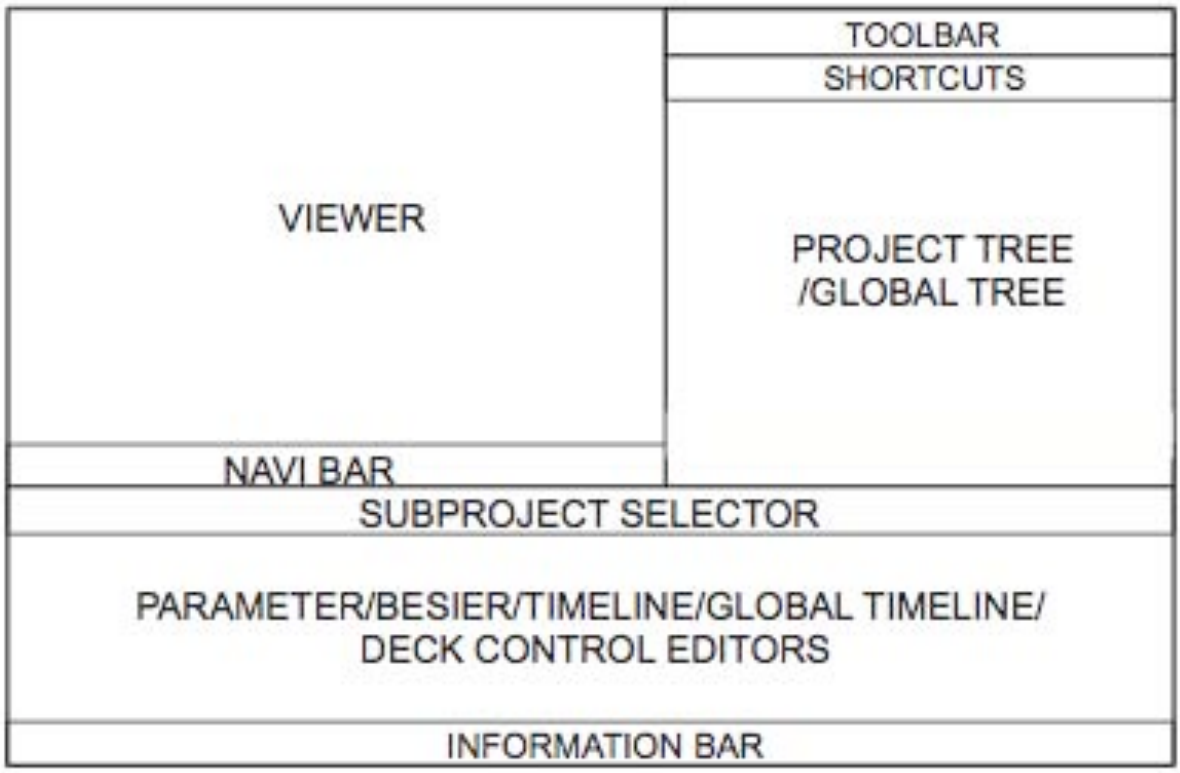
3.2. SOLAR Interface

After startup SOLAR interface fills your entire screen



Solar Interface

The interface consists of the following key areas:



Solar interface layout

Tip: You can adjust the work areas by grabbing and dragging the dividers to the desired position/size. Doublecliking on a work area – zooms your screen on that section, to see the whole interface again doubleclik one more time.

VIEWER – displays your current working media, selected/desired effect or composite.

Tip*: doubleclick the viewer area to expand the viewer to full screen for better viewing*

NAVI BAR – View selection between realtime and broadcast display & broadcast versions, basic video/image controls, displayed video quality and size settings.

Subproject Selector - Subproject selector is a frame based visual time lime representation of current subprojects.

TOOLBAR– access to most SOLAR tools, objects, filters, and predefined actions/effects.

SHORTCUTS – most commonly used tools, you can re-arrange those or add the desired items by a simple drag&drop.

TREEVIEW – shows current or global project as a tree diagram.

SUBPROJECT SELECTOR – visual representation of loaded clips as a frame timeline bars.

CONTROL PANEL - main screen area displaying current parameters, controls, deck editors.

LEFT WORK MENU – switch between Control Panel, Global Timeline you can also access SOLAR settings and a potent Image Analizer tool.

INFORMATION BAR –current license information and file control menu.

TOOLTIPS – SOLAR includes „tooltips“ that describe elements on the interface – buttons, fields, tree view elements. To use tooltips move the cursor over an object and wait a few seconds.

3.3. Interface Details

3.3.1. The Viewer contextual menu

Accessing the right click/contextual menu gives you access to several options:

show color curve;show image; clamp to format, pixel aspect ration; high dynamic range; use LUT; Autoproxy; Cache, **Compare Tool;** Preview;| Show Treeview; Save Image, Render Flipbook

3.3.2. *Navi Bar*

Realtime & Broadcast – switch between realtime view of your project and a broadcast view defined by *Broadcast* operator,

Video control buttons - navigate the active sequence with standard Forward/Fast Forward, Back/Rewind, Play Stop buttons.

Keyframe control buttons: by clicking the „key“ button you can turn autokey function on or off, when enabled it automatically defines a keyframe on each operation performed within the timeline for an active project/operator. [for example adjusting an operator setting]. Clicking on the left/right buttons next to the autokey button jumps between set keyframes within the project.

DOD (rectangle icon]– shows the active area in the project

Color Mode – switches between RGB and alpha channel views.

A/B sink buttons – switches between alternative views within the projects
TIP: use sinks with compare tool to quickly compare operator results on a projects

FIT button – resizes your project to fit the preview window.

View and Proxy settings buttons – 100% button sets the view to 1:1 ration in the viewer.
1/1;1/2;1/4;1/8 presets – simplify the project calculations by autocalculating at lower resolutions in the viewer, the setting autoadjusts the clip view – at lower resolutions it automatically zooms in to remain at the previously set size.

Gizmo button – shows/hides gizmos – [gloss. Gizmos are visual modifier for certain operators.]

Invert – Inverts Current selection

3.3.3. Subproject Selector

Subproject selector is a frame based visual time lime representation of current subprojects. SS is basically a simplified Global Timeline,

Each subproject is represented as horizontal bar. Doublecliking on a subproject highlights the subproject bar and switches the treeview to reflect the selected subproject.

Tip: Press del to delete a selected frame sequence/project

Tip: select multiple subprojects by dragging a box around the desired subprojects, while holding the mouse button.

Elements:

Subproject No – displays the active subproject number.

Global/Local mode & frame numbers – switch between global (displays current frame in the Global timeline and the total number of frames.) and local (displays current frame and a total number of frames in an active subproject).

Autoswitch Track – enables disables automatic switching between active subprojects and tree views as you move the frame selector line.

Track Number – indentifies tracks, starts at 0.

Lock elements – locks all subprojects in the Selector in place.

Frame – displays active frames 1 global, 2 in the active subprojects.

Additional options in Contextual/right click menu

TIP: you can zoom in on the project view by scrolling the mouse wheel

3.4. Basic Controls

Basic Controls

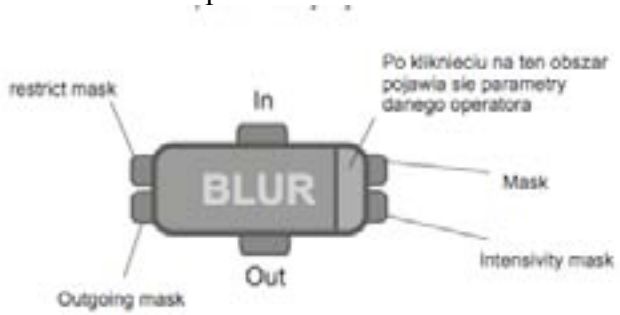
3.4.1. **Mouse and Keyboard**

Most actions can be accomplished using a 3 button, scroll wheel mouse.

Default setting: left button is used for selection or action, right button for contextual menus [changes depending which item or area is active. Middle button scrollwheel is used for zooming in or out of an area for example in the Viewer, timeline or Framestore. Holding the middle button down enables you to move around the zoomed in area or control areas for some reason not filly visible in your UI setting or resolution.

3.4.2. Treeview operators

3.4.2.1. Treeview is a major part of managing SOLAR workflows, most work in treeview is shown by operators. They appear as Nodes in Treeview by selecting the desired operator from one of the top menus.



3.4.2.2. Most operators have following properties:

In socket on the top, Out socket on the bottom.
Left side has a restrict and outgoing mask sockets
Right side has Mask and intensivity mask sockets.
Clicking on the right side button in the Node body, displays the available operator's settings in the main control panel.

Operators can be connected by clicking and dragging between corresponding elements, for example by clicking from an OUT socket of imported movie clip and dragging the mouse cursor to an IN socket or a chosen mask socket of our operator/node we create a connection which in effect applies chosen effect to the clip.

Current view in The Viewer corresponds to the selected operator in treeview – for example if an imported video clip is selected [you can select operators by single click on

the given icon] the view will show unedited image – when you click on the connected blur operator, The Viewer will show the clip with blur effect applied.

[See Treeview Tutorial on..... for a brief walkthrough how to use treeview operators and nodes]

3.5. SOLAR Menus

3.6. Creating and managing projects

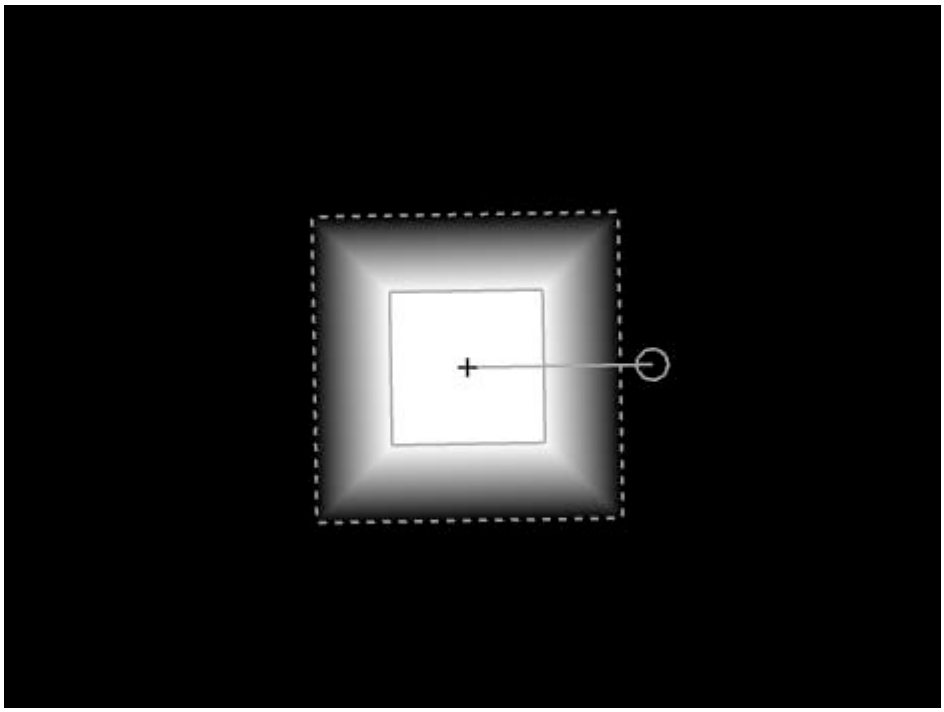
4. Solar Operators

Operators – all the graphical node representations of SOLAR‘s effects and tools are commonly called „operators“

4.1.IN/OUT menu operators

4.1.1. **BOX**

Creates a rectangle shaped object – can be adjusted in size, color or rotated, – You can adjust inner and outer radius to gain a desired intensity of the object.



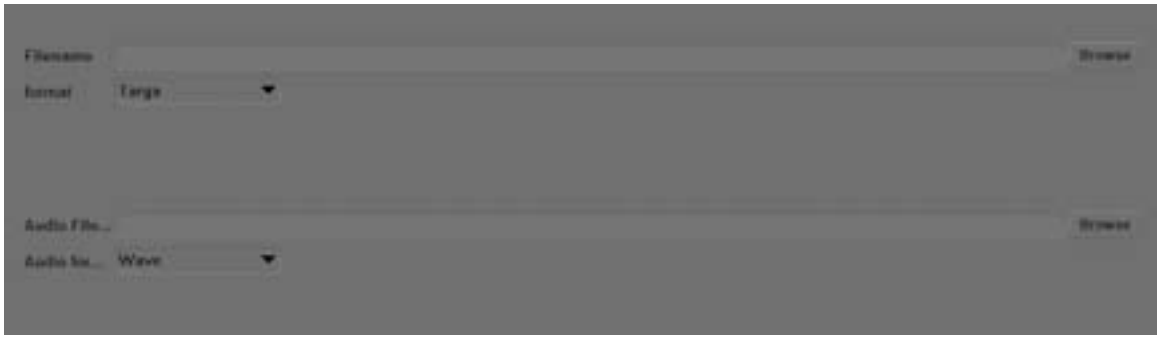
Box Example

Box Control Panel

4.1.2. Broadcast

The broadcast operator gathers input from all the connected operators and generates an output of visuals and audio to a location defined in operator settings . Broadcast operator generates the „*Broadcast*“ view enabled by the *Navibar* button.

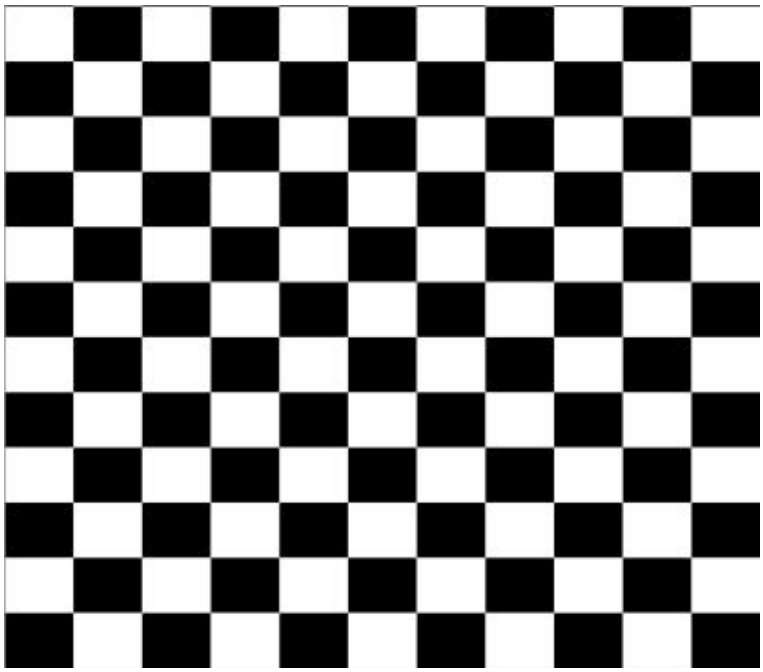
Broadcast renders contents of the entire project, OUT operator renders contents only a connected subproject tree



Broadcast Control Panel

4.1.3. Checkerboard

Creates a „checkerboard“ object, you can adjust the contrasting colors, and change the size of the board to get the desired look.



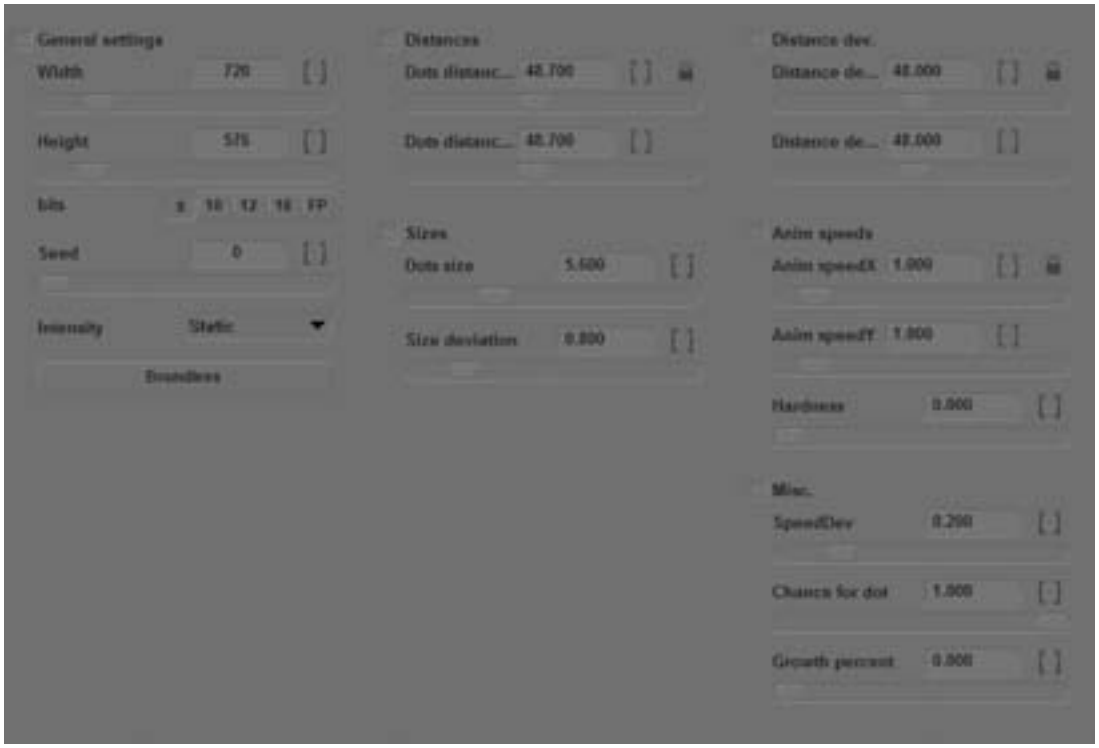
Checkerboard Example

Checkerboard Control Panel

4.1.4. Dots

Overlays a field of *Dots* – circular objects -over your projects. You can adjust the size, distance between individual dots, animation speed, even adjust colors of the dots. Dots give you an infinite number of combinations to enhance other input material or to create interesting animated content.

Dots Examples



Dots Control Panel

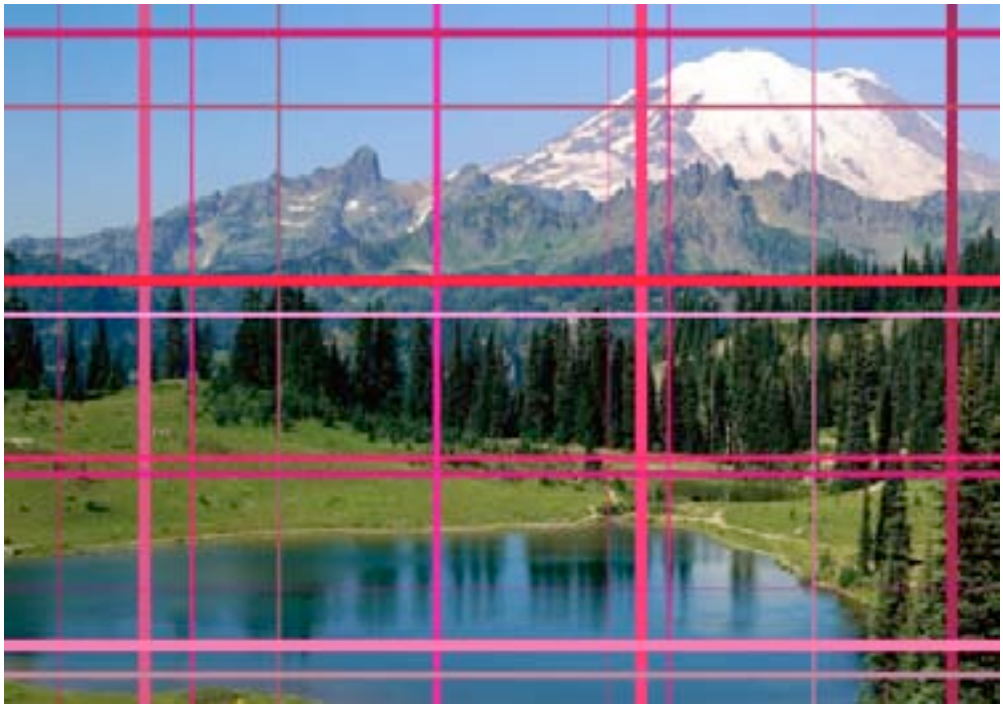
4.1.5. FLOW

Pardon the white space...
Please visit www.lightstream24.com/support/ for an updated manual or go to

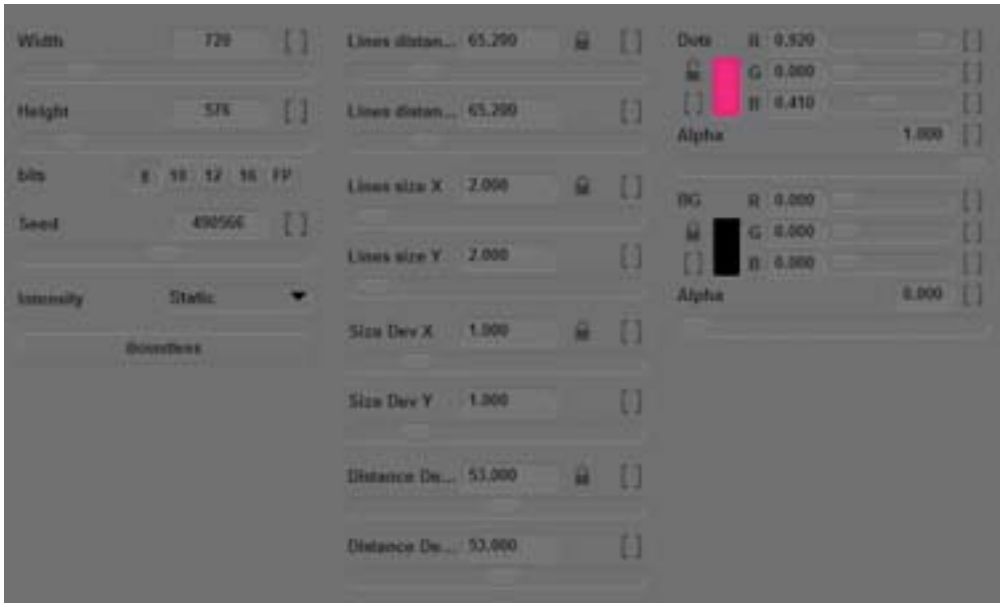
www.lightstream24.com/forum/ to get help from Lightstream Staff.

4.1.6. Grid

Draws/overlays a grid on your project. Grid is fully adjustable – from line distance through deviation in line weight to adjusting color settings and animation parameters.



Grid Example



Grid Control Panel

4.1.7. IN

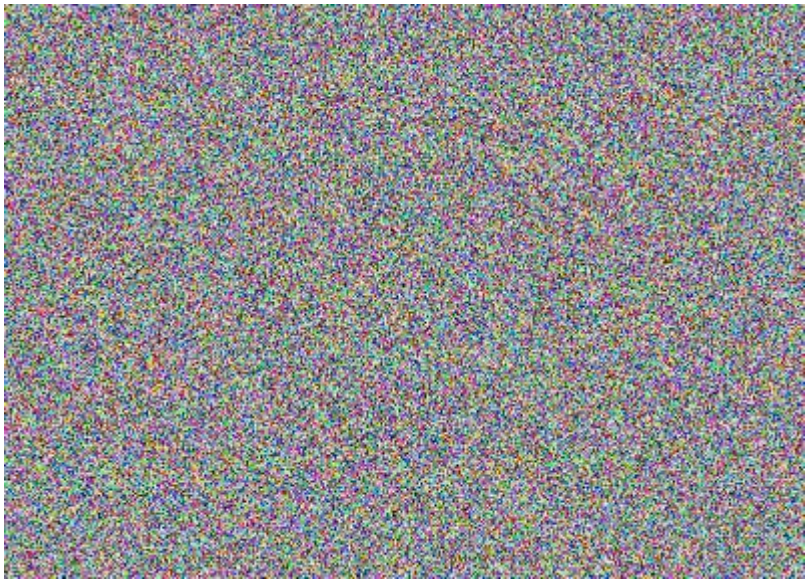
Imports media into a SOLAR project. Handles import of image/graphic files sequence or video files in a streaming format. Your basic import media tool.

IN OBJECT (first sequence frame in preview panel)

IN operator control panel

4.1.8. NOISE

Generates a TV like „noise effect“ – you can adjust the sizing, density and number of seed points for the effect and choose the number of overlaying seed layers to get the desired look.



Noise Example

Noise Control Panel

4.1.9. **Out**

An output operator –gathers input from nodes or trees – sends it to broadcast view [see Viewer pp) , can be used to create alternative outputs/versions of the project.

OUT operator renders contents only a connected subproject tree, BROADCAST renders contents of the entire project.

Out Control Panel

4.1.10. PAINT

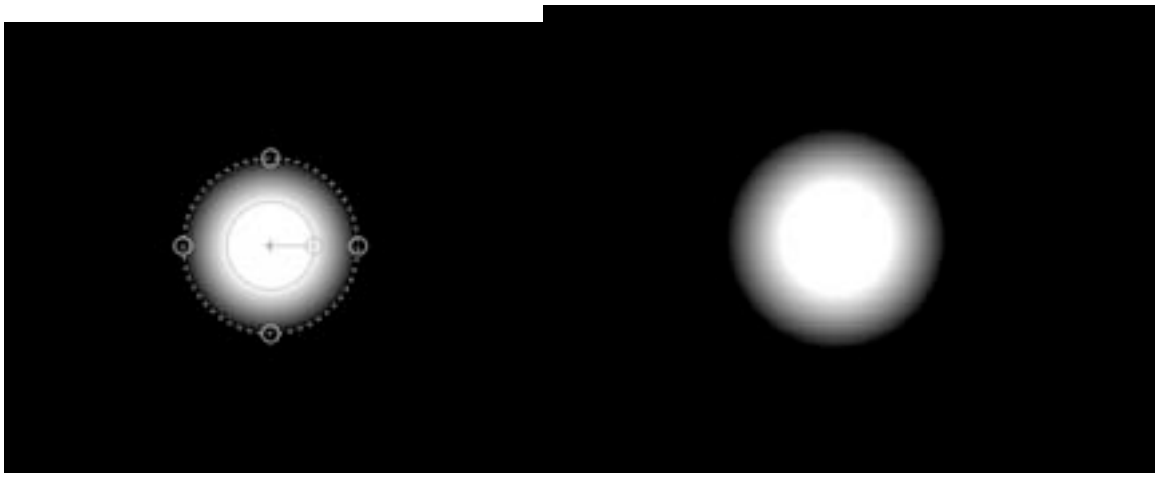
Very potent module – enables you to add graphic elements to your project sing predefined shapes & brushes. You can draw using freehand, Bezier Curve, Lines, Ellipses, Boxes or shapes. Includes some predefines graphical brushes.

Paint Operator Example

Paint Control Panel

4.1.11. RADIAL

Creates a spherical shape with an inner and outer radius. Radial is fully adjustable to fine tune it to your needs.



Radial Examples

Radial control Panel

4.1.12. RAMP

Creates a color gradient. You can adjust start & end colors, adjust the color spread using X,Y parameters to suit your project needs.

Ramp example

Ramp Control Panel

4.1.13. SHAPE

One of the most advanced operators in Solar. Enables drawing to mask and select desired shapes and to create custom objects to interact with other SOLAR operators.

Shape Example

Shape control panel

4.1.14. SOLID

Generates a solid one color shape. You can sjuts color, size, bit depth of the created object.

Solid Control Panel

4.1.15. TEXT - enables user to create and manipulate text.

Text Options and settings

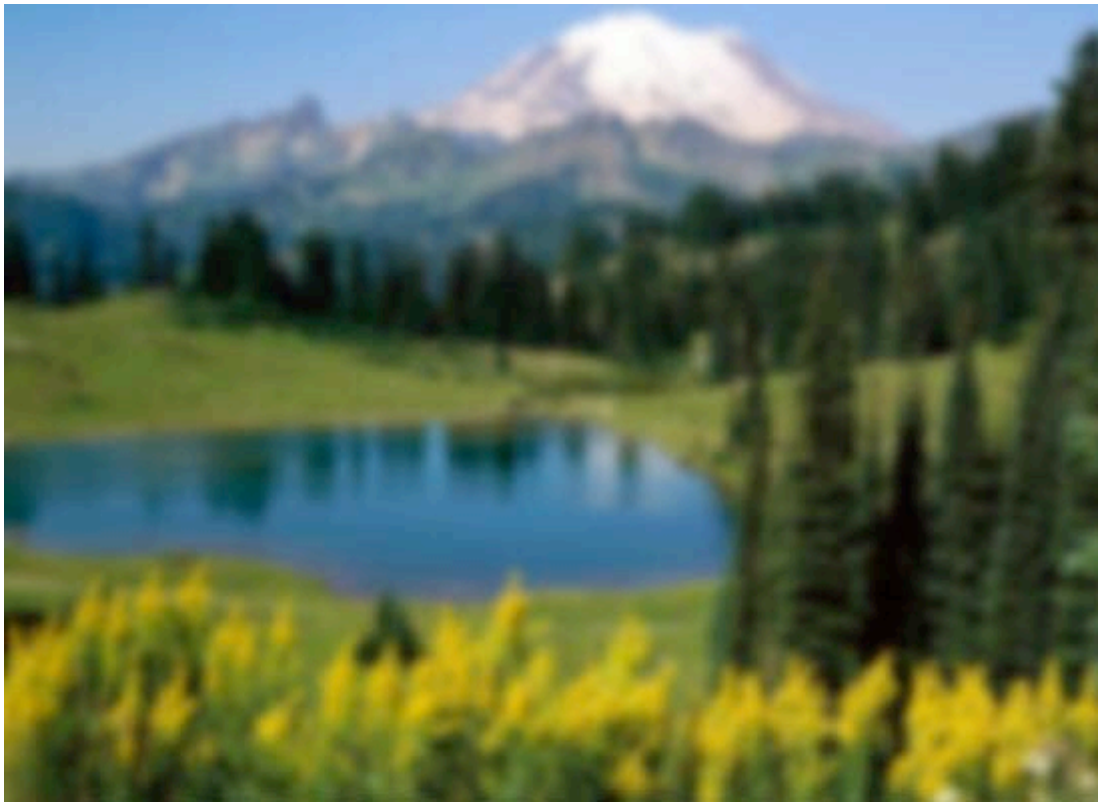
4.2. Filter menu operators

4.2.1. BLUR

Allows to modify an image using a lowthroughput filter to change the quality of the incoming image and get a „blurring“ effect.

Parameters:

Strength x/y – adjust the basic blur strength
Filter x/y - Gaussian blur filter



Blur Example

Blur Control Panel

4.2.2. CIRC BLUR

Blurs an incoming image using a circle with radius measured from the effect center with given arc length. The visual effect is similar to a painter using his brush to spread the wet paint in a circular motion.

Parameters:
Center (defined by X,Y location values)
Length – blur arc length (brush stroke length)

Circ Blur Example

Circ Blur Control Panel

4.2.3. DOF

Depth Of Field (the distance between the nearest and farthest objects in a scene that appear acceptably sharp in an image). DOF is a digital emulation of lack of sharpness apparent in images as recorded using optical lenses . DOF can create the same effect of varying sharpness throughout the edited image.

Parameters:
Strength X/Y – effect intensity
boostpoint – together with overwhite lightens the effect – describes the light intensity above

which a given pixel should be lightened
Overwhite – lightening scale

DOF Example

DOF Control Panel

4.2.4. DAMAGE

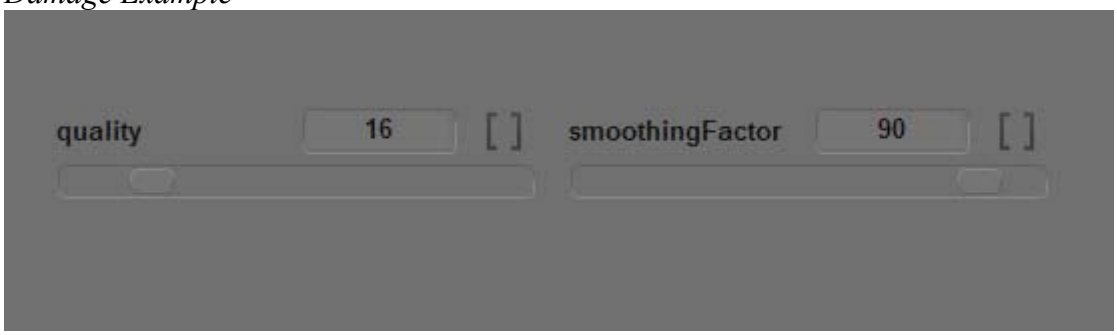
Digitally „damages“ the incoming image, a visual effect of pixelizing or „compressing“ the image to appear to be at much lower quality or resolution

Parameters:

Quality – changes the quality of the image

Smoothing Factor – smoothing the pixel edges in the modified image for a more subtle effect

Damage Example



Damage Control Panel

4.2.5. DEFOCUS

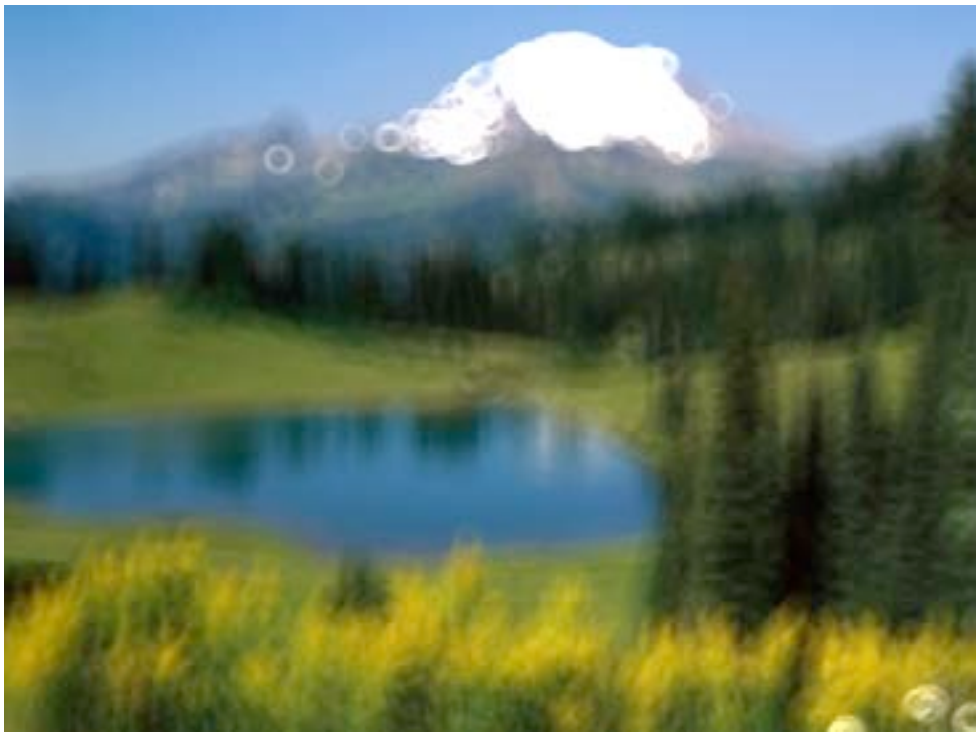
Blurring effect simulating a defocusing effect as seen through an optical lens with a prism pattern. Several predefined prism patterns are available to finetune for a desired optical effect.

Parameters:

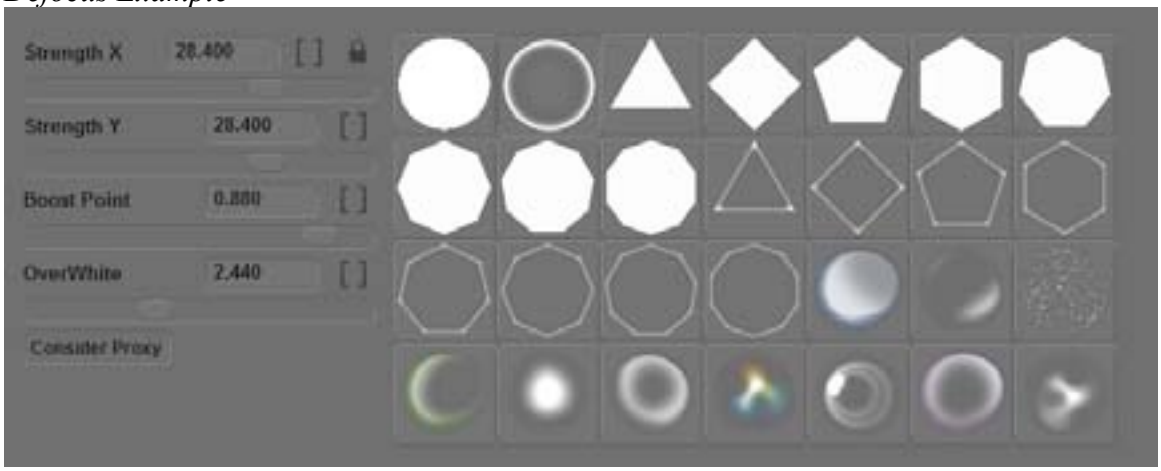
Strength x/y - effect intensity

Boost Point - together with overwhite lightens the effect – describes the light intensity above which a given pixel should be lightened

Over White – lightening scale



Defocus Example



Defocus Control Panel

4.2.6. DENOISEWAV

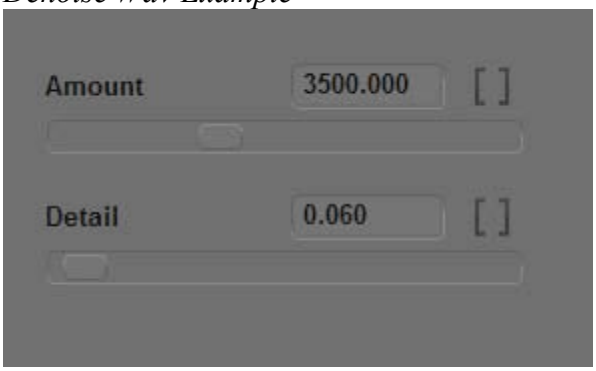
Operator which can help restore a damaged image by smoothing out the incoming image to discern the „original“ pattern – a side effect - by denoising a relatively clean and sharp image we can achieve an outerwordly painting effect.

Parameters:

Amount – the level of smoothing desired

Detail – amount of detail - scale of denoising desired

Denoise Wav Example



Denoise Wav Control Panel

4.2.7. Direct Blur .

Directional blur – applies a blur effect applied on a chosen direction (angle).

Parameters:

Angle – set the angle at which incoming image will blur

Length – length of the effect

Direct blur Example

Diret Blur Control Panel

4.2.8. EDGE DETECT

Detects sharp changes in image brightness or colors and presents them as varied line outlines.

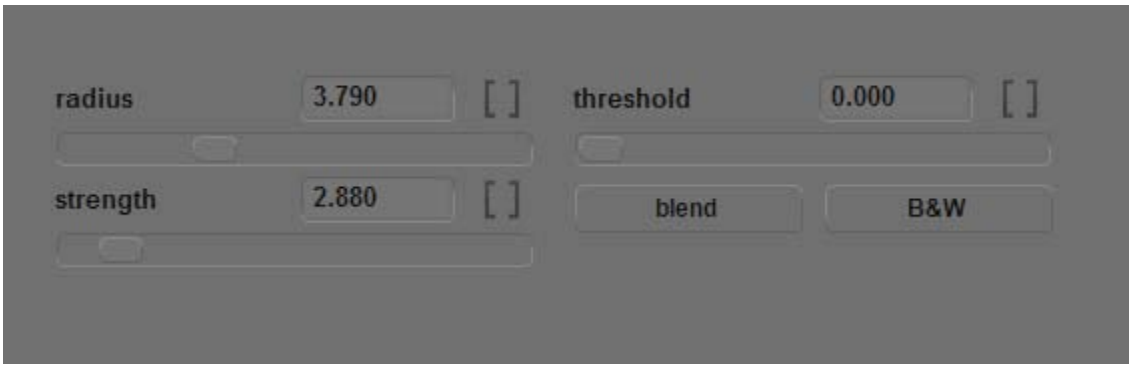
Parameters:

Radius- range of complexity in the presented image edges

Strength – effect intensity

Threshold – defines detail level of presented „edges“

Edge Detect Example



Edge Detect Control Panel

4.2.9. EMBOSS

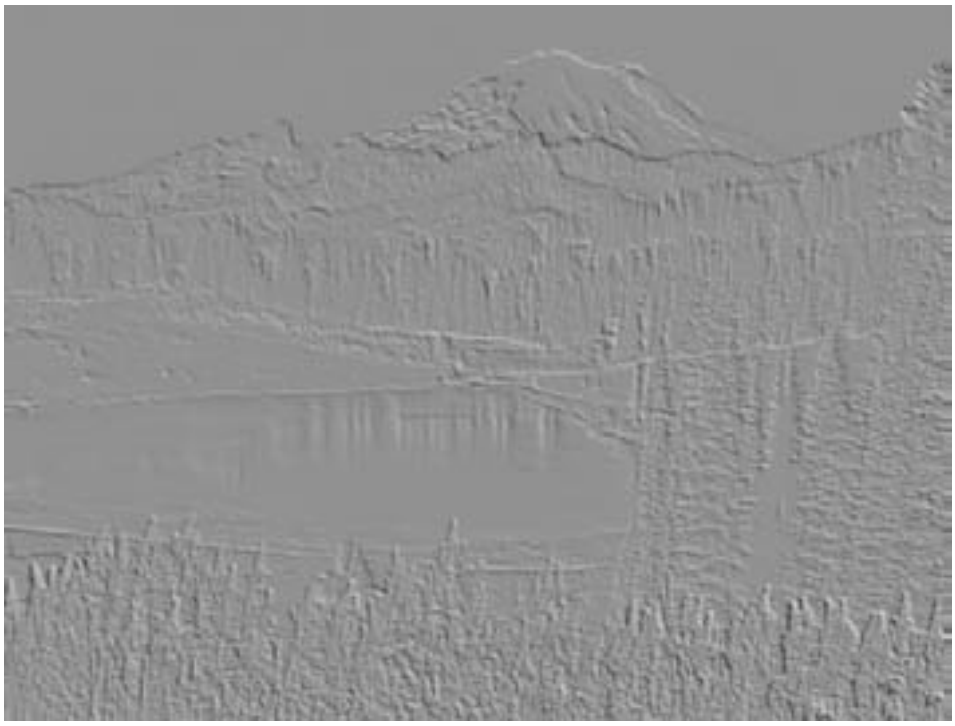
Emulates sculpting of the incoming image in a model surface (for example metallic) – so called embossing or bas-relief).

Parameters:

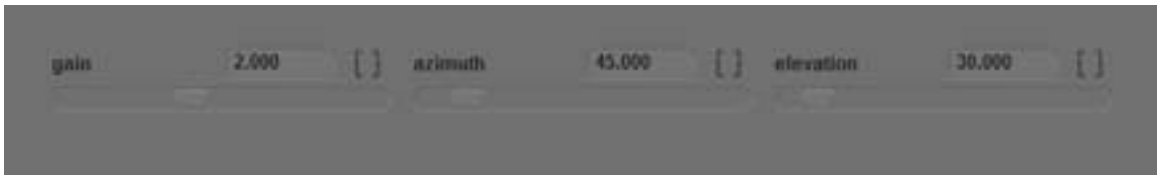
Gain: effect strength (depth of the emboss)

Azimuth: angle at which light hits the embossing

Azimuth: height of the light source.



Emboss Example



Emboss Control Panel

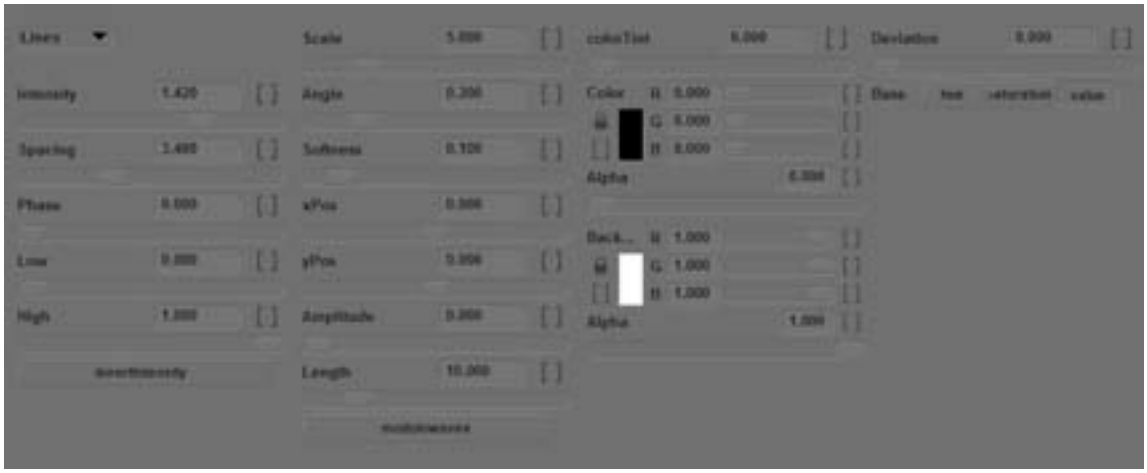
4.2.10. ENGRAVE

Simulates engraving of predefined shapes over your image- lines, circles or dots.

Parameters:

You can adjust Intensity, Spacing, Phase, Scale , Position, Angle and coloring of the engraved shapes.

Engrave Example



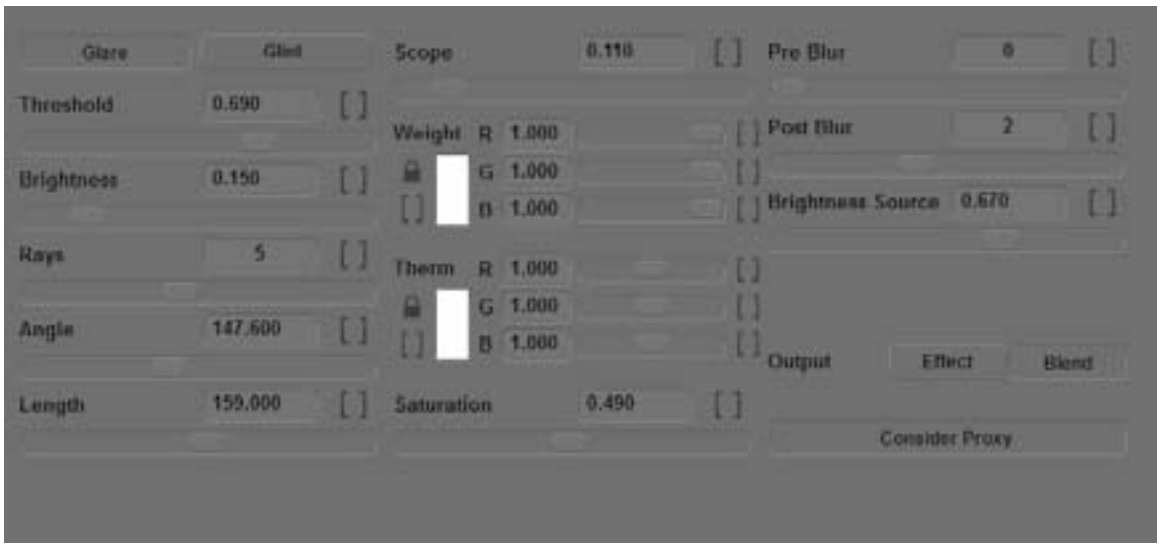
Engrave Control Panel

4.2.11. GLARE

Overlays (on screen) defined shapes on lighter image areas – intensifies lighter points or potential light sources.

You can adjust effect threshold and brightness, adjust rays angle and length length. Fine-tune blurring and background contrast (brightness source).

Glare Example



Glare Control Panel

4.2.12. GLOW

Add a radiant glow (lightens) brighter spots in an incoming image – causes the images to gain an enhanced outerwordly color characteristic.

Parameters:

Glow X/Y – adjusts glow level

Threshold – effect threshold and noticeable level

Intensity – intensity of the effect

Saturation – color saturation adjustment

Restore highlights - adjusts highlights

Tint – adjust the effect color from default white

Glow Example

Glow Control Panel

4.2.13. GRAIN

Overlays the incoming image with a color deformation simulating noise visible when playing analog video tapes

Parameters:
Force Random - forces new effect calculation for each frame.
Obey Alpha – turns on ignoring the pixels with alpha equal to 0.
Intensity - sets effect strength
Density – sets density of generated rain effect
Scale - sets grain particles size
Response – sets the color of generated grain
OverResponse – sets the way grain is generated depending on lightness of a given pixel
Saturation – sets the color saturation of the generated grain
Softness – defines smoothing of individual grain particles
Random – changes the constant of the grain generating algorithm
GrainCenter – adjusts the brightness of both the incoming image and the overlaid grain effect.

Grain Example

Grain Control Panel

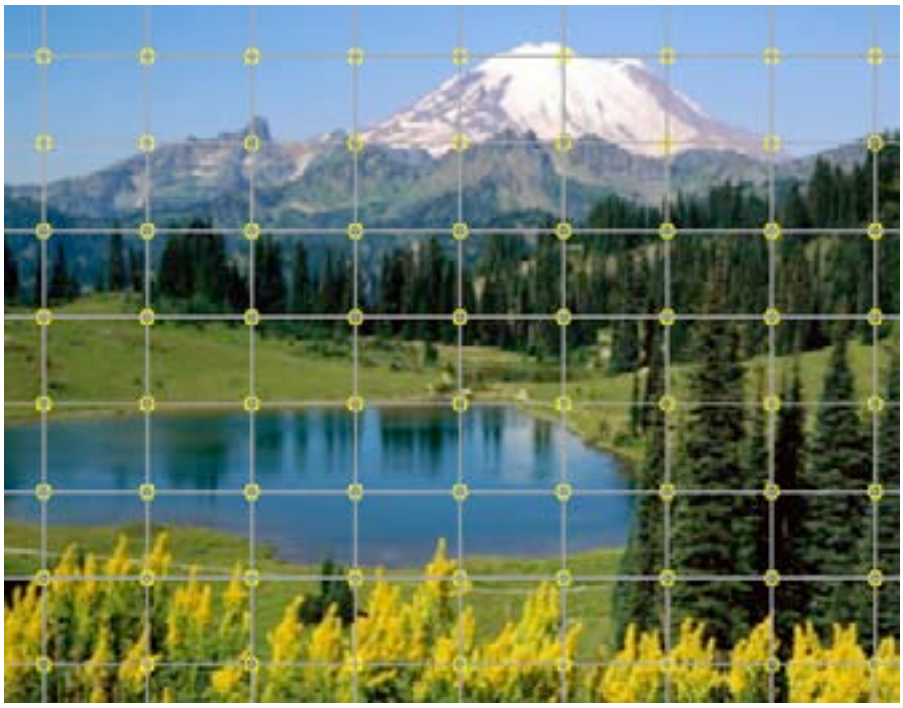
4.2.14. GRID WARP

Overlays an incoming image with an adjustable grid – each grid intersection is an active point which enables you to warp the image. When you click the grid warping point making it active, additional warping points become available to fine tune the warping of a given area.

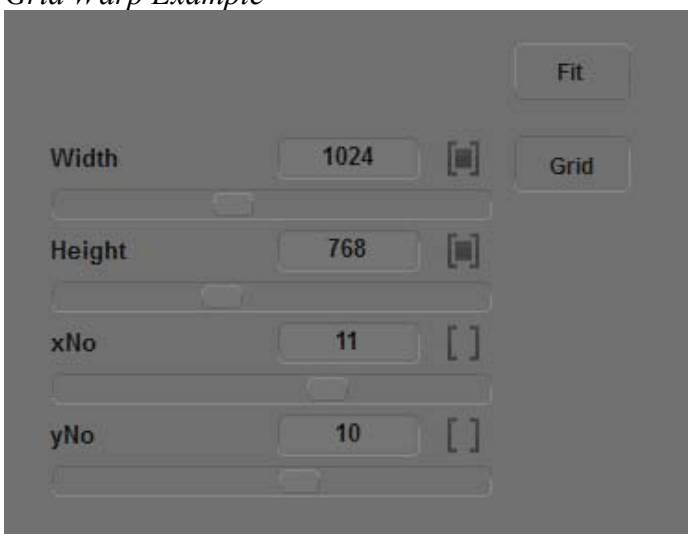
NOTE: *changing grid area and size in the operator control panel – resets the grid and all the warping points to default positions*

Parameters:

Width/Height – adjust the width&height of the grid area
xNO/yNO – set grid area – number of grid sectors in horizontal (x) and vertical (y)



Grid Warp Example



Grid Warp Control Panel

4.2.15. MEDIAN

Median filter resulting in noise reduction (while preventing edges) in an incoming image.

Parameters:

Strength X/Y – filter strength
Channels R/G/B/A – active channel Red/Green/Blue/Alpha

Median Example

Median Control Panel

4.2.16. PIXELIZE

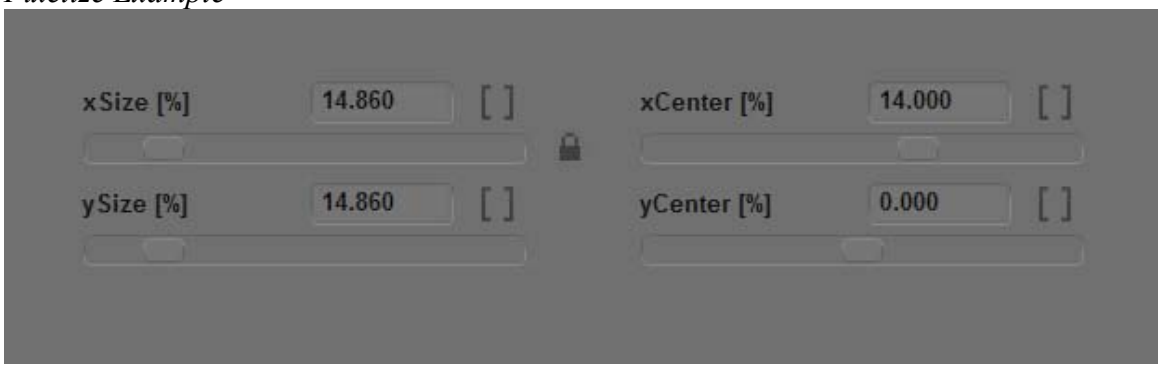
Renders the image using large pixel blocks. It is similar to the effect seen on TV when obscuring someone's face.

Parameters:

Size (%) X/Y – changes pixel size

Center (%) X/Y – adjusts pixel position in reference to image center

Pixelize Example



Pixelize Control Panel

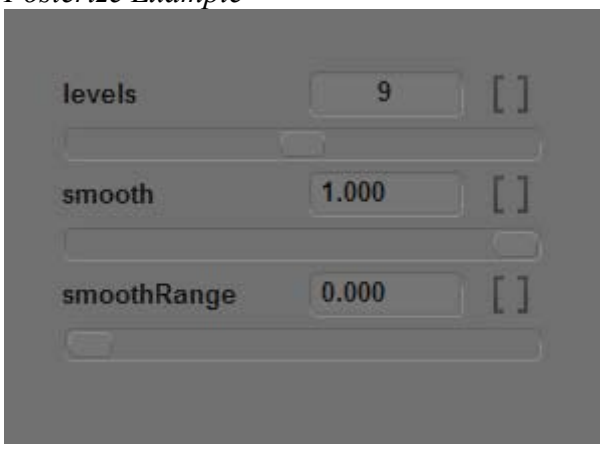
4.2.17. POSTERIZE

Converts the image consisting of distinct areas of flat colors or tones – reduces the number of colors within the full color image – results in a sort of „cut-out“ effect.

Parameters:

Levels – adjusts the color levels/areas
Smooth/ Smooth Range – adjust smoothing of color/contrast areas.

Posterize Example



Posterize Control Panel

4.2.18. QUANTIZE

Simplifies the color structure of an incoming image.

Parameters**:**

Colors – set the number of colors (min 2)

Quantize Example

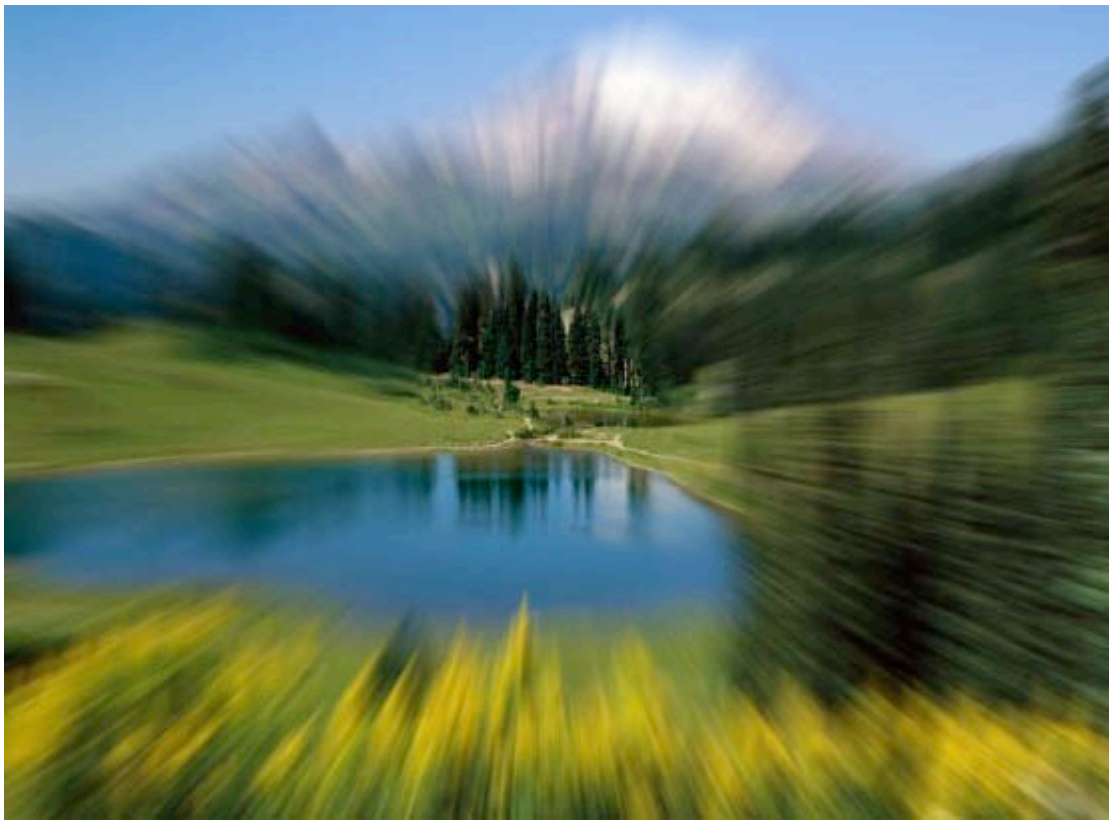
Quantize Control Panel

4.2.19. RADIAL BLUR

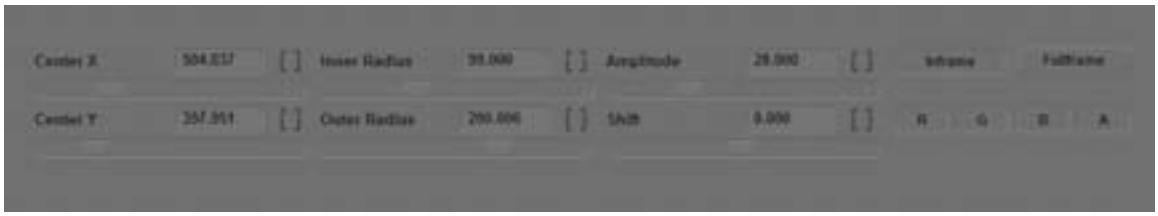
Another blur filter - creates a blur effect centered around a Radial consisting of two circles.

Parameters**:**

Center X/Y – adjust the defining radial
Inner/Outer Radius – set the defining circles size
Amplitude – change the effect strength
Shift – warp the blurred area in the relation to image edges
R/G/B/A – set color channels



Radial Blur Example



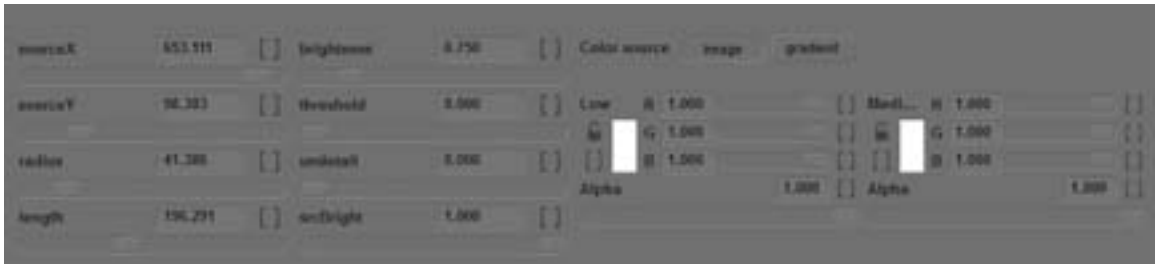
Radial Blur Control Panel

4.2.20. RAYS

Effect drawing light rays coming out of a single point called a source. Rays are created by

brightening or colorizing pixels in a circle radius around set center point (source).

Rays Example



Rays Control Panel

4.2.21. SHARPEN

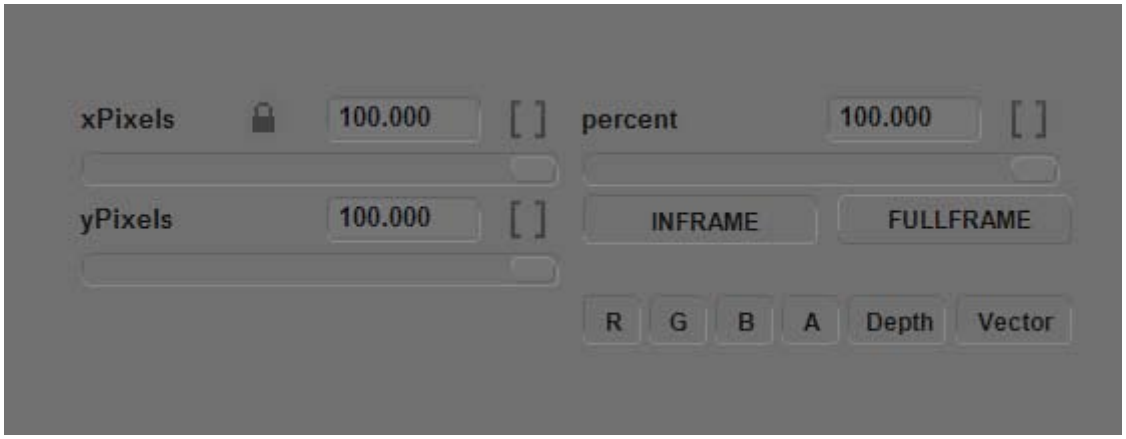
Sharpens an image using mask enhancing edges and other high contrast components

Parameters:

Pixels X/Y – changes vertical and horizontal values of sharpening mask

Percent – changes sharpening intensity

Sharpen Example



Sharpen Control Panel

4.3.COLOR menu operators

4.3.1. BRIGHTNESS

Operator affecting the color curve of an image. It can darken or lighten an incoming image.

Parameters:

Master – adjusts the overall image brightness

Low – adjusts the darker tones in an image

Medium – adjusts the median tones in an image

High – adjusts the brightest tones in an image

RGB/Luminance - switches between two brightness conversion modes.

Auto Black at 0 – alternative calculation mode while darkening

R/G/B/A –turns on/off pixel conversion in RGB/Alpha channels

Brightness Example

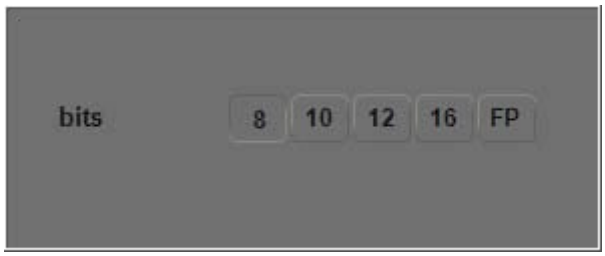
Brightness Control Panel

4.3.2. BYTE

Converts the byte value of an incoming image.

Parameters:

8/10/12/16 – supported byte conversion values



Byte Control Panel

4.3.3. CLAMP

Adjusts the RGB channels of the color in an incoming image to within the gamut of 0 to 1 if they fall outside that range.

Parameters:
Minimum/Maximum – Set minimum or maximum color value between 0 and 1.

Clamp Example

Clamp Control Panel

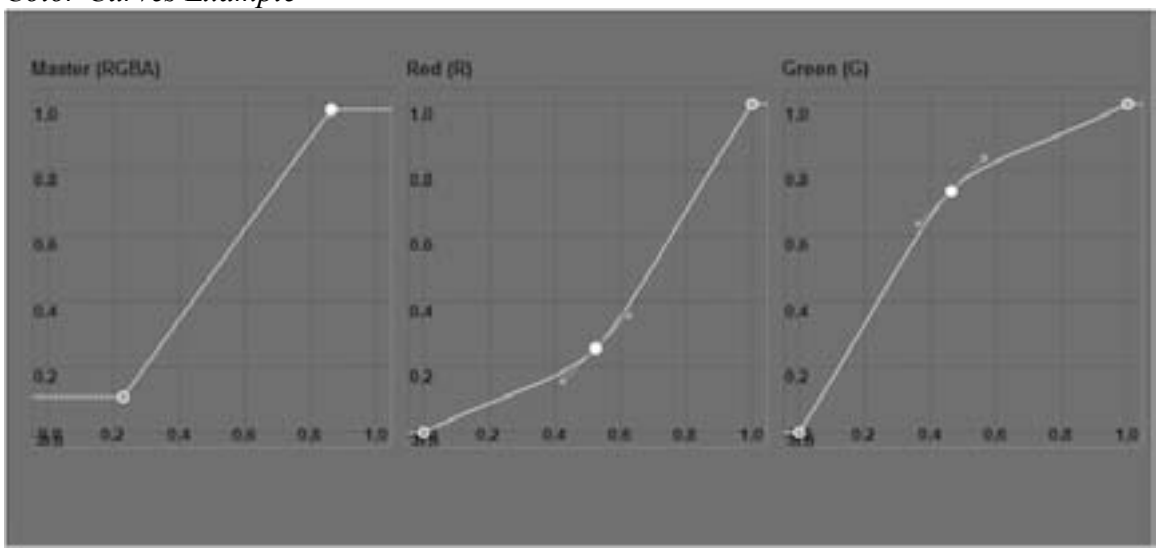
4.3.4. COLOR CURVES

Used to remap image color tones using graphical representations of colors, you can adjust all channels in a picture at once (master) or to fine tune each channel individually.

Parameters:

Master (RGBA) – adjust all channels
Red (R) – adjust Red channel
Green (G) - adjust Green channel
Blue (B) - adjust Blue channel
Alpha (A) - adjust Alpha channel

Color Curves Example



Color Curves Control Panel

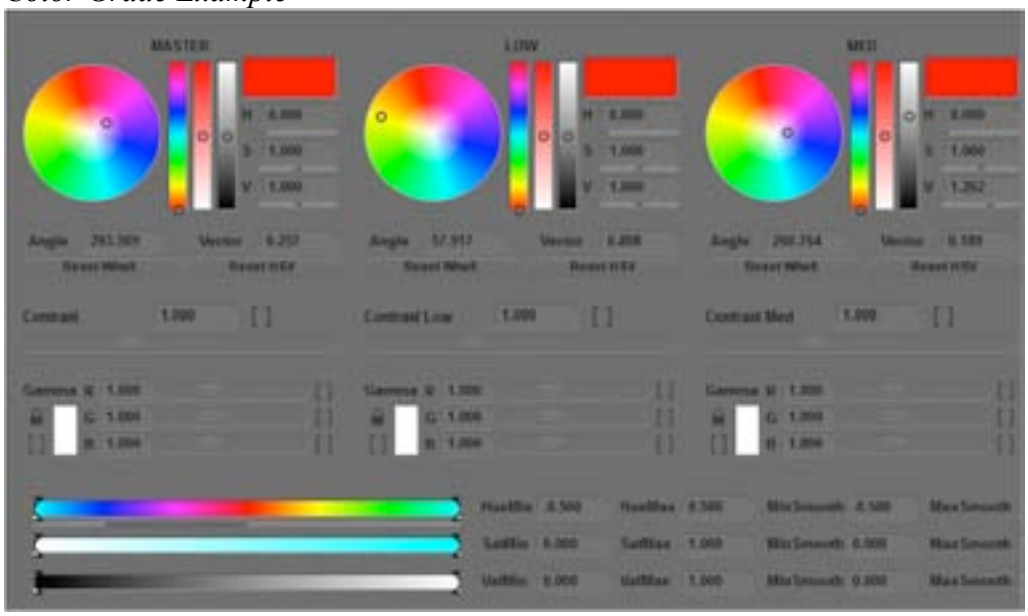
4.3.5. COLOR GRADE

Enhances colors in an incoming image – you can adjust color in the master image, or adjust Low, Med or High channels in the image.

Parameters:

Adjust all color settings (master/hi/med/low) using standard color wheels and sliders.

Color Grade Example



Color Grade Control Panel

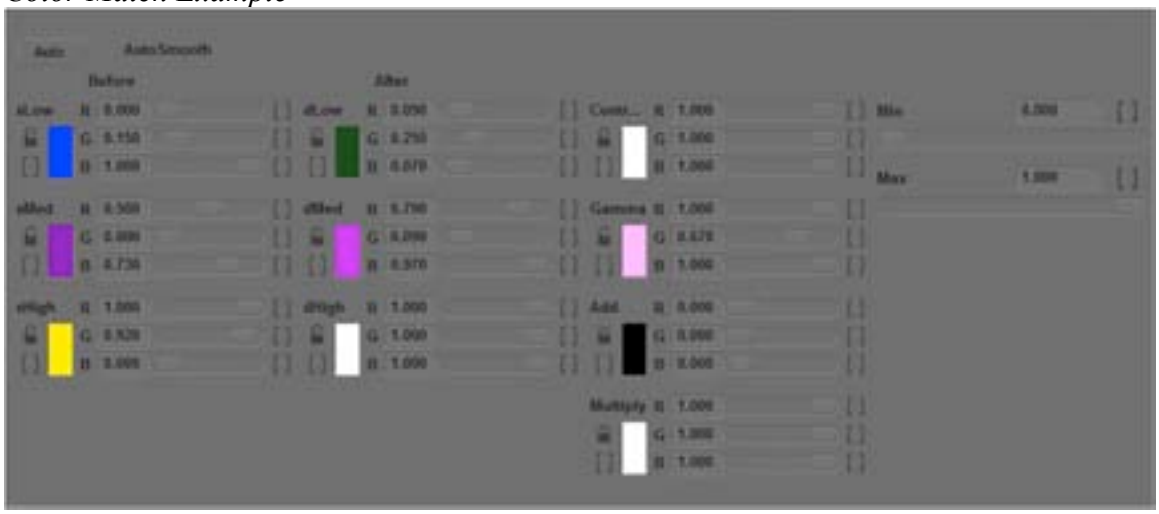
4.3.6. COLOR MATCH

Advanced color correction tool – simplifies Hi, Low and Mid tone correction using a source and target colors.

Parameters:

Source Low/Mid/Hi – sets source color in darker /medium/brighter image tones
Destination Low/Mid/Hi – sets destination color in darker/medium/brighter image tones.
Contrast – changes overall image contrast
Gamma – changes overall gamma values in an image
Add – enables adding a set color value to each pixel
Multiply – sets a value by which all pixels are multiplied.
Min Float – sets brightness value that replaces black in an image
Max Float – sets brightness value that replaces white in an image.

Color Match Example



Color Match Control Panel

4.3.7. COLOR REPLACE

This operator affects all pixels in an image – replaces pixels and their surroundings with chosen color with a set target color. Pixel surrounding is defined in HSV space.

Parameters:

Source – sets color to be replaced
Destination – sets color that will replace the source color
Hue Range – sets range modifying „hard“ source pixel surroundings (affects Hue)
Hue FallOff – sets range modifying „soft“ source pixel surroundings (affects Hue)
Hue Sharpens – sets smoothness of color change in „soft“ source pixel surroundings (affects Hue)
Saturation Range - sets smoothness of color change in „hard“ source pixel surroundings (affects Saturation)
Saturation FallOff - sets range modifying „soft“ source pixel surroundings (affects Saturation)
Saturation Sharpness - sets smoothness of color change in „soft“ source pixel surroundings (affects Saturation)
ValueRange - sets smoothness of color change in „hard“ source pixel surroundings (affects Value)
ValueFallOff - - sets range modifying „soft“ source pixel surroundings (affects Value)
ValueSharpness - sets smoothness of color change in „soft“ source pixel surroundings (affects Value)

Color Replace Example

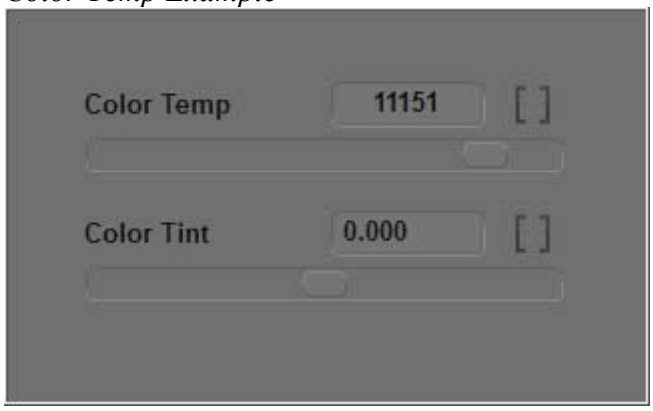
Color Replace Control Panel

4.3.8. COLOR TEMP

Adjusts color characteristics of visible light – to change cool colors (blueish white) to warm colors (yellowish, red) or vice versa.

Parameters:
Color Temp – set color temperature of an image
Color Tint – set color intensity

Color Temp Example



Color Temp Control Panel

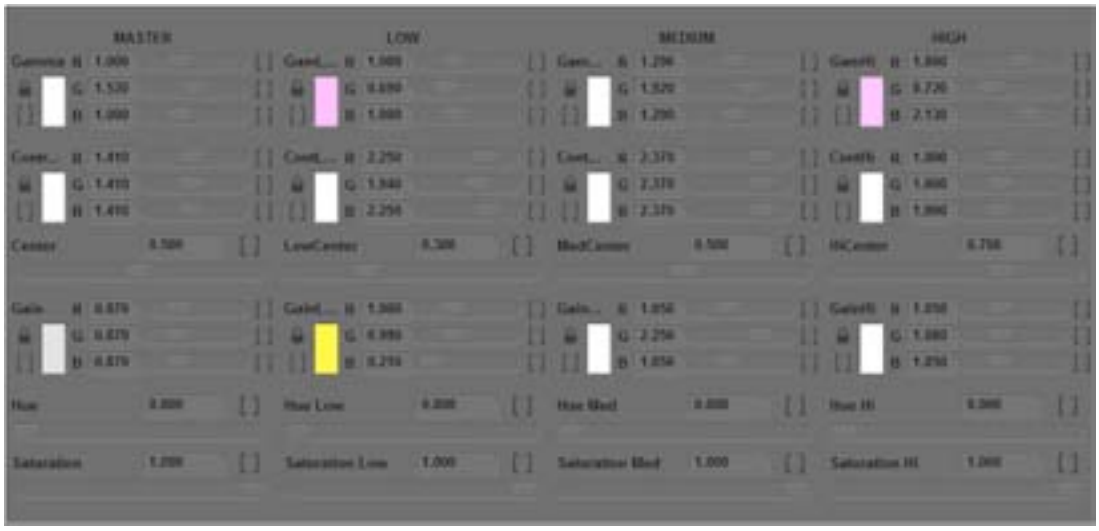
4.3.9. COLORIST

Consists of a few smaller operators to make large scale color changes easier – contains a large number of basic color modifying options.

Parameters:

Gamma – general gamma correction of an image
Gamma Low/Med/High – gamma correction in dark /median/bright tones of an image
Contrast – general contrast correction of an image
Contrast Low/Med/High contrast correction in dark /median/bright tones of an image
Contrast Center – median value contrast correction of an image
Contrast Center Low/Med/High - median value contrast correction in dark /median/bright tones of an image
Brightness - general brightness correction of an image
Brightness Low/Med/High - brightness correction in dark/median/bright tones of an image
Hue – modifies general hue in colors of an image
Hue Low/Med/High - modifies hue in dark /median/bright tones of an image
Saturation - modifies general saturation in colors of an image
Saturation Low/Med/High - modifies color saturation in dark /median/bright tones of an image

Colorist Example



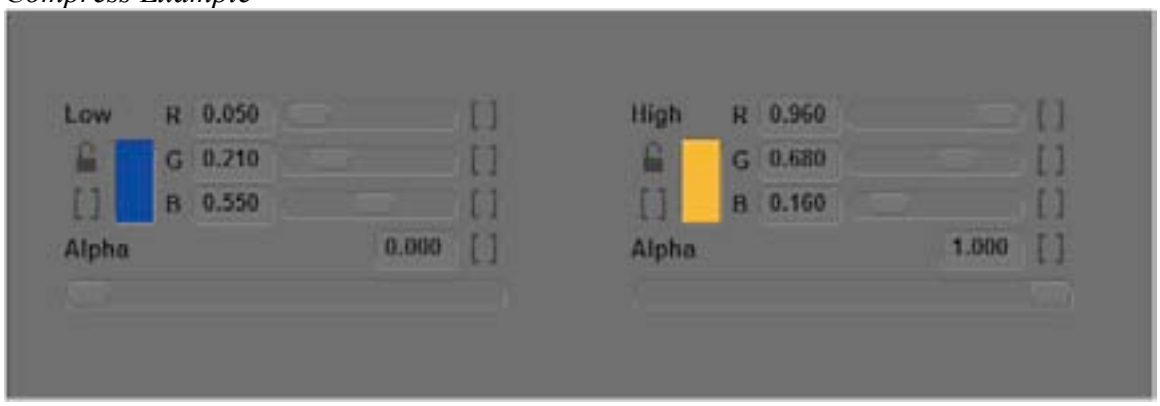
Colorist Control Panel

4.3.10. COMPRESS

Operator enables packing or compressing a full color range of the input pixels to a more constrained one. For example a range 0-1 can be fit into a range of 0.3-0.7

Parameters:
Low – bottom value of the compressed range
High – top value of the compressed range

Compress Example



Compress Control Panel

4.3.11. CONTRAST

Corrects incoming image contrast value.

Parameters:

Contrast Value – sets general image contrast
Contrast Center – sets general brightness of an image
Lo Value – sets contrast in the darker tones of an image
Lo Center - sets brightness in the darker tones of an image
Med Value – sets contrast in median tones of an image
Med Center – sets brightness in median tones of an image
Hi Value - sets contrast in brighter tones of an image
Hi Center - sets contrast in brighter tones of an image
Contrast LoSoftness – smooths dark and sharp edges created by the operator
Contrast HiSoftness – smooths bright and sharp edges created by the operator
RGB/Luminance – switches between two operator modes
R/G/B/A – turns on operator's impact on R/G/B/A channels

Contrast Example

Contrast Control Panel

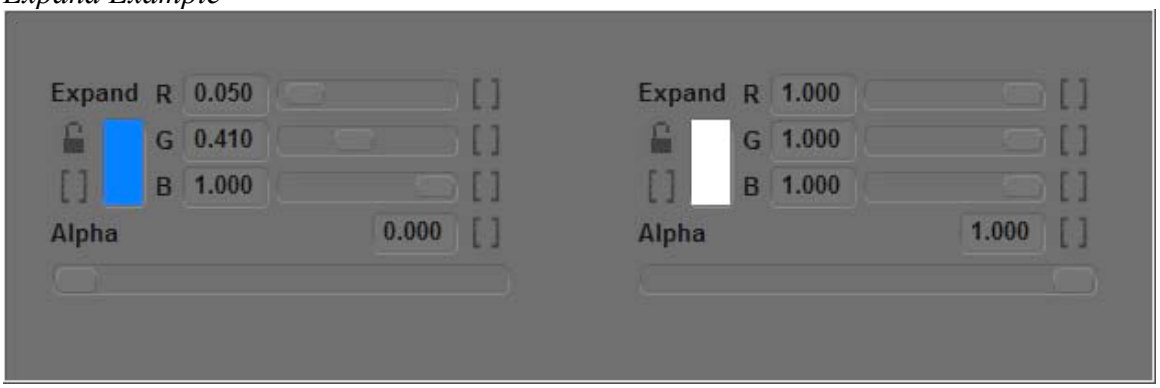
4.3.12. EXPAND

Operator enables expanding or „stretching“ a full color range of the input pixels to a broader one. For example a range 0-1 can be fit into a range of -1 to 2.

Parameters:

Low – bottom value of the expanded range
High – top value of the expanded range

Expand Example



Expand Control Panel

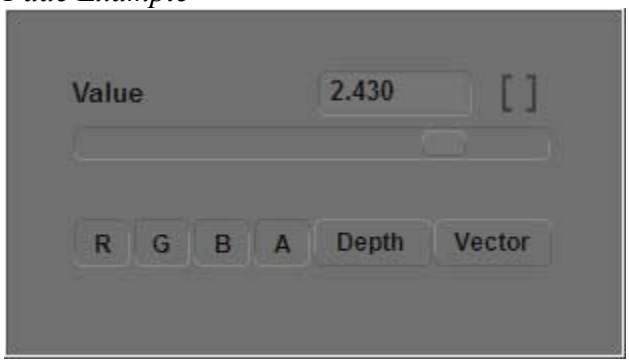
4.3.13. FADE

Enables an even dimming or brightening of all pixels in an incoming image.

Parameters:

Value – sets the operator factor impacting the incoming image
R/G/B/A – turns on operator's impact on R/G/B/Alpha channels

Fade Example



Fade Control Panel

4.3.14. GAMMA

gamma correction of an image

Parameters

Gamma – whole image adjustment
Gamma Low/Med/High – gamma correction in dark /median/bright tones of an image

Gamma Example

Gamma Control Panel

4.3.15. HSV

Enables color correction of an image using HSV (Hue/Saturation/Value) color space using detailed range settings.

Parameters:
Source color –sets source color value
Destiny color – sets target color value
Hue Offset – sets changes to the Hue component
Hue Range – sets the range in which Hue is modified
Hue Falloff - sets the range in which Hue is modified smoothly
Hue Sharpness - sets the range in which Hue is modified smoothly
Saturation Offset -– sets changes to the Saturation component
Saturation Range - sets the range in which Saturation is modified
Saturation Falloff - sets the range in which Saturation is modified smoothly
Saturation Sharpness - sets the range in which Saturation is modified smoothly
Value Offset - – sets changes to the Value component
Value Range - sets the range in which Value is modified
Value Falloff - sets the range in which Value is modified smoothly
Value Sharpness - sets the range in which Value is modified smoothly

HSV Example

HSV Control Panel

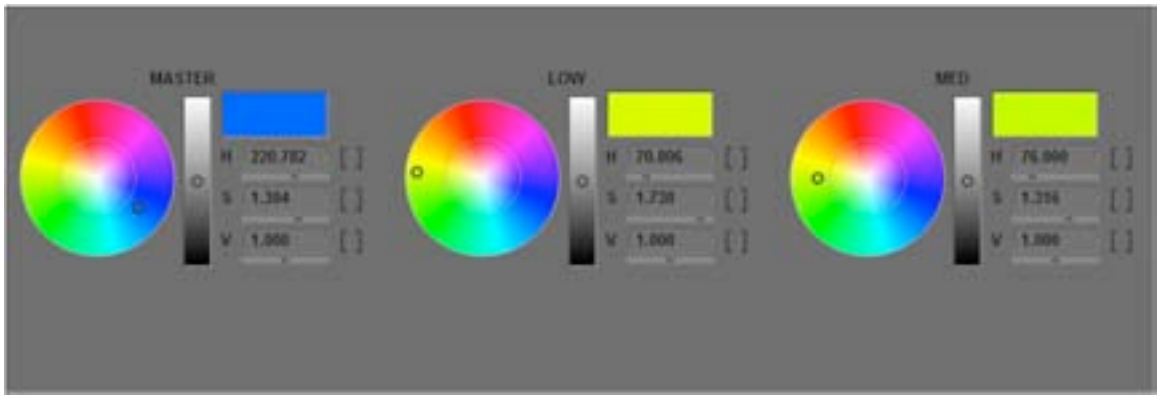
4.3.16. HSV WHEELS

Enables color correction of an image using HSV (Hue/Saturation/Value) color space using visual color wheel representations of HSV color space.

Parameters:

Master – adjusts the overall image color space
Low – adjusts the color space in dark image tones
Med - adjusts the color space in median image tones
High - adjusts the color space in bright image tones

HSV Wheels Example



HSV Control Panel

4.3.17. **LUT FILE** - allows you to load a color look up table file (LUT) – to apply predefined color settings to an image.

Lut File Control Panel

4.3.18. **LEVELS**

Allows defining values for RGB color space components and adjusting linear transfer between top and bottom values.

Parameters:
RGB – graphical operator interface affecting full RGB color space
R/G/B/A - graphical operator interface affecting R, G, B or A color space
R Low/High – sets bottom and top values in the R channel range
R Med - adjusts linear transfer between bottom and top values in the R channel
G Low/High - sets bottom and top values in the G channel range
G Med - adjusts linear transfer between bottom and top values in the G channel
B Low/High – sets bottom and top values in the B channel range
B Med - adjusts linear transfer between bottom and top values in the B channel
A Low/High – sets bottom and top values in the A channel range
A Med - adjusts linear transfer between bottom and top values in the A channel

Levels Example

Levels Control Panel

4.3.19. LOG2LIN

Converts linear color space into a logarithmic color space and vice versa.
Useful function when working with 10bit DPX/Cineon file formats.

Parameters:

Log2Lin/Lin2Log – switches the conversion mode from Linear to Log between Log to Linear
Offset – adjusts the central correction point
Black – represents a 10 Bit resolution value representing Black
White - represents a 10 Bit resolution value representing white
nGamma – sets value of gamma correction in the numerator of the conversion formula
dGamma - sets value of gamma correction in the denominator of the conversion formula

Log2Lin Example

Log2Lin control Panel

4.3.20. MDIVMMULT

Multiplies or divides incoming color values by a set intensity factor (doesn‘t affect mask value)

Parameters:

Mdivide – divide mode
Mmultiply – multiply mode
Intensity - multiplication / division factor
Ignore Zero – ignore black color values

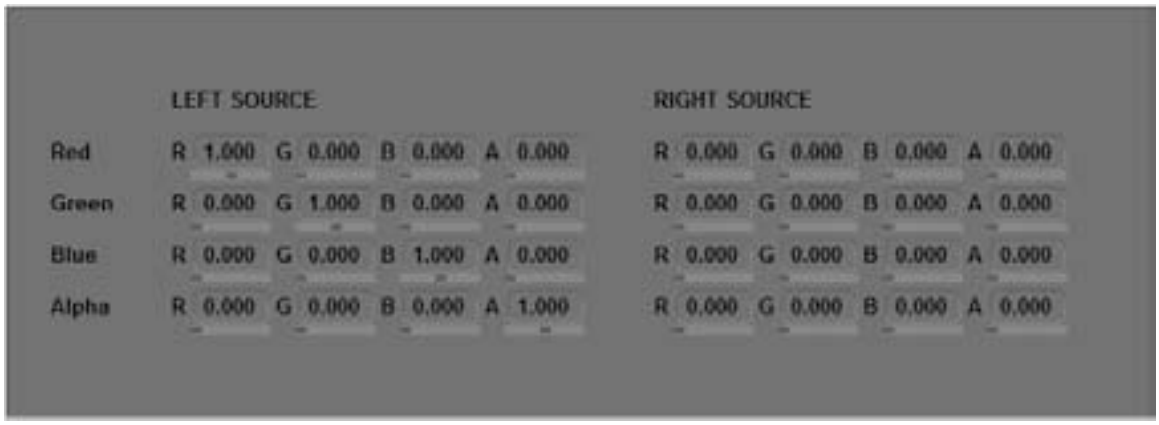
MdivMmult Control Panel

4.3.21. MIXER

Dual input operator – allows mixing of color space from two sources using RGB color space using detailed settings

Parameters:
Left Source R/G/B/Alpha – finetune Left incoming source color space in Red/Green/Blue/Alpha Channels using numeric values or sliders
Right Source R/G/B/Alpha - finetune Right incoming source color space in Red/Green/Blue/Alpha Channels using numeric values or sliders

Mixer Preview

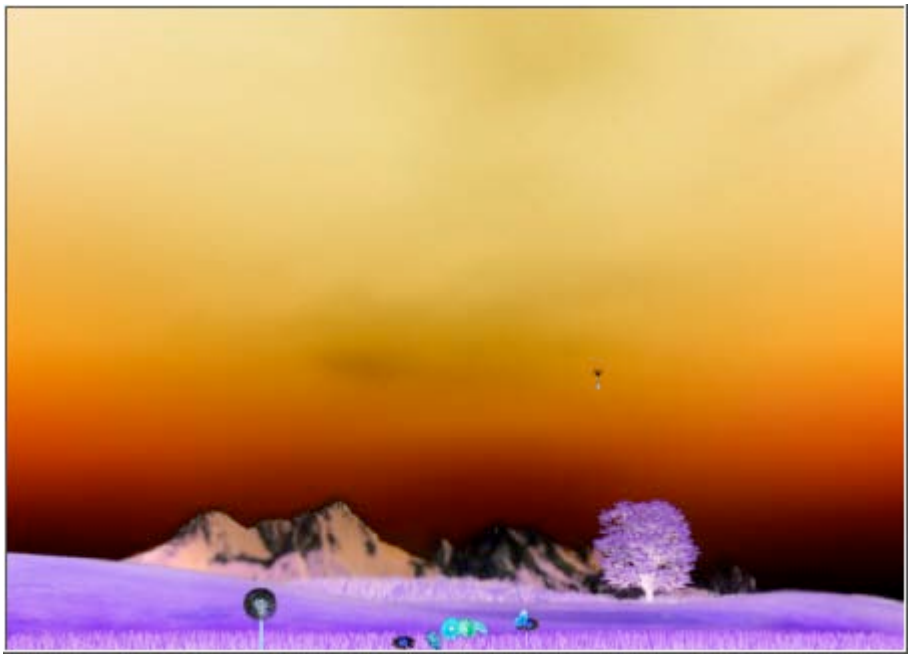


Mixer Control Panel

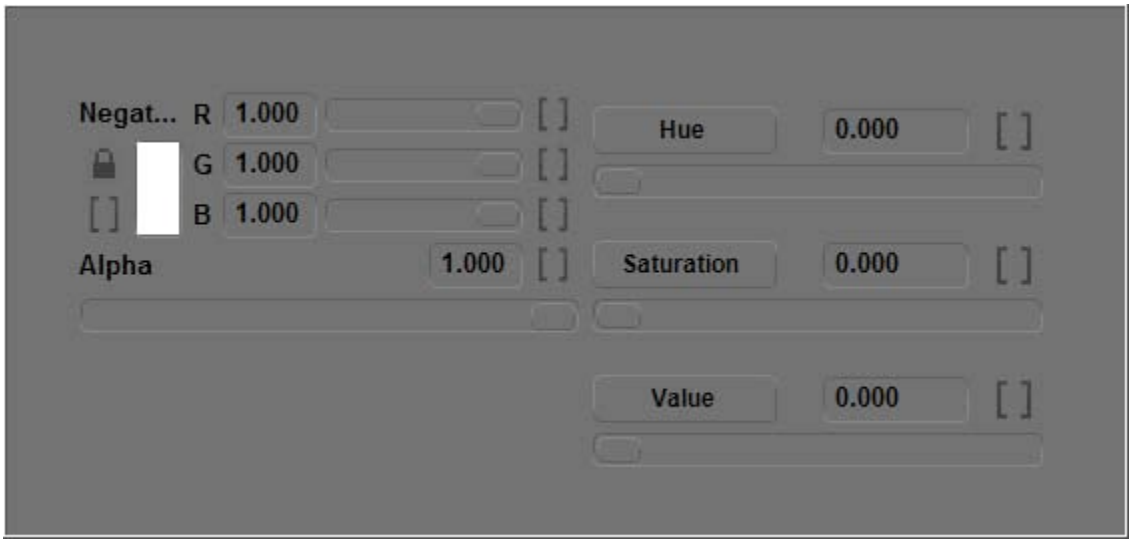
4.3.22. NEGATIVE

Converts incoming image into a negative by inverting colors.

Parameters:
Negative Color – set main negative color using RGB color space
Hue – activate/adjust Hue color component in HSV color space
Saturation - activate/adjust Saturation color component in HSV color space
Value - activate/adjust Value color component in HSV color space



Negative Example



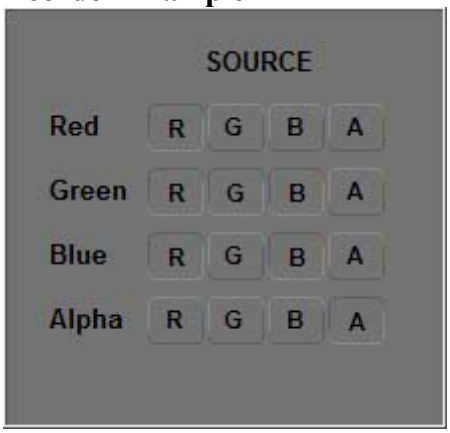
Negative Control Panel

4.3.23. REORDER

Switches places between chosen RGB color space channels in an image. Allows adding color channels to each other or overlapping them, depending on your particular needs.

Allows to add channels between each other base based on your preferences.

Reorder Example



Reorder Control Panel

4.3.24. SAFE COLORS

Limits output colors to broadcast safe color ranges for PAL or NTSC standards.

Safe colors Control Panel

4.3.25. **SATURATION**

Operator sets the saturation level in incoming image colors

Parameters :
Value: sets overall image color saturation
Weight R/G/B: sets value and „weight“ of the R/G/B channel in color correction

TIP: to avoid an unnatural color effect, weights of all composite channels should add up to 1.
The initial values are preset at:
Weight Red = 0.299; Weight Green = 0.587; Weight Blue = 0.114.

Saturation Example

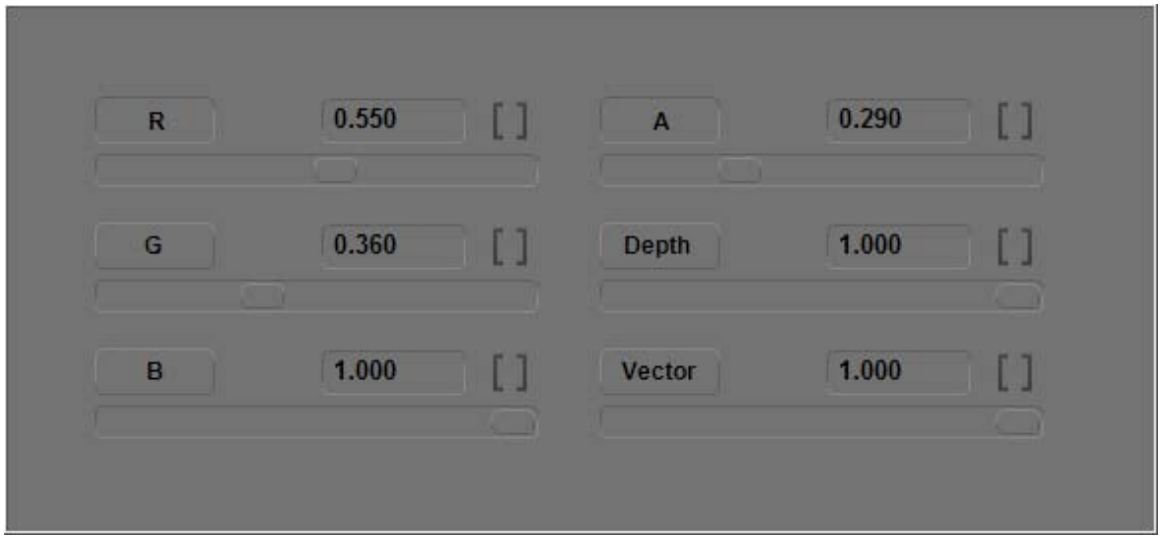
Saturation Control Panel

4.3.26. SET

Operator replaces chosen color space components in all image pixels with values chosen as parameters in the control panel.

Parameters
R/G/B/A Buttons – turns on/off R/G/B/A components in the image
R/G/B/A Value – sets channel parameter value applied to the image pixels

Set Example



Set Control Panel

4.3.27. SET ALPHA

Replaces alpha channel value in an incoming image with set parameter

Parameters:
Alpha Button – turns Alpha components in the image
Alpha Value – sets channel parameter value applied to the image pixels

Set Alpha control Panel

4.3.28. **SET BG COLOR**

Sets background color - can be used to change background color in the visible area outside operator transform/impact area or overlay a new BG color over an image for a new effect.

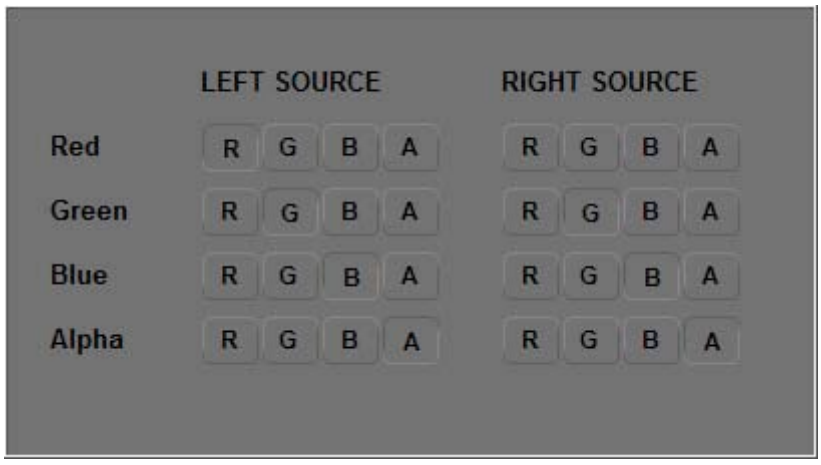
Parameters:
Color - Set background color
R/G/B /Alpha– set R/G/B/Alpha channel values
Preserve DOD – preserve the active area of the project

Set BG Color Control Panel

4.3.29. SWITCH

Dual input operator – allows mixing of color space from two sources using RGB color space with simplified color settings (on/off values) – simplified version of the Mixer operator.

Parameters -
Left Source: left input source R/G/B/A channels control (on/off) buttons
Right Source: right input source R/G/B/A channels control (on/off) buttons

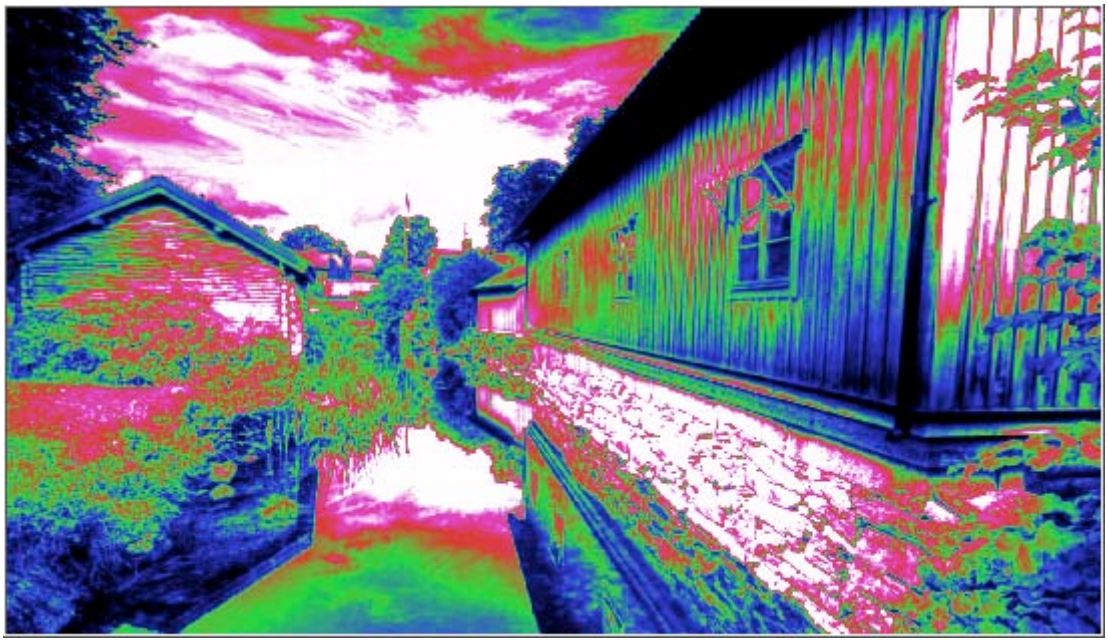


Switch Control Panel

4.3.30. THERMOGRAPH –

Converts incoming picture to a view of a thermo graphic camera – representing colors depending on their temperature in the infrared spectrum.

Parameters:
0°/16°/32°/48°/64°/80° - temperature simulation points – change color settings at predefined temperature points using RGB color space.



Thermograph Example

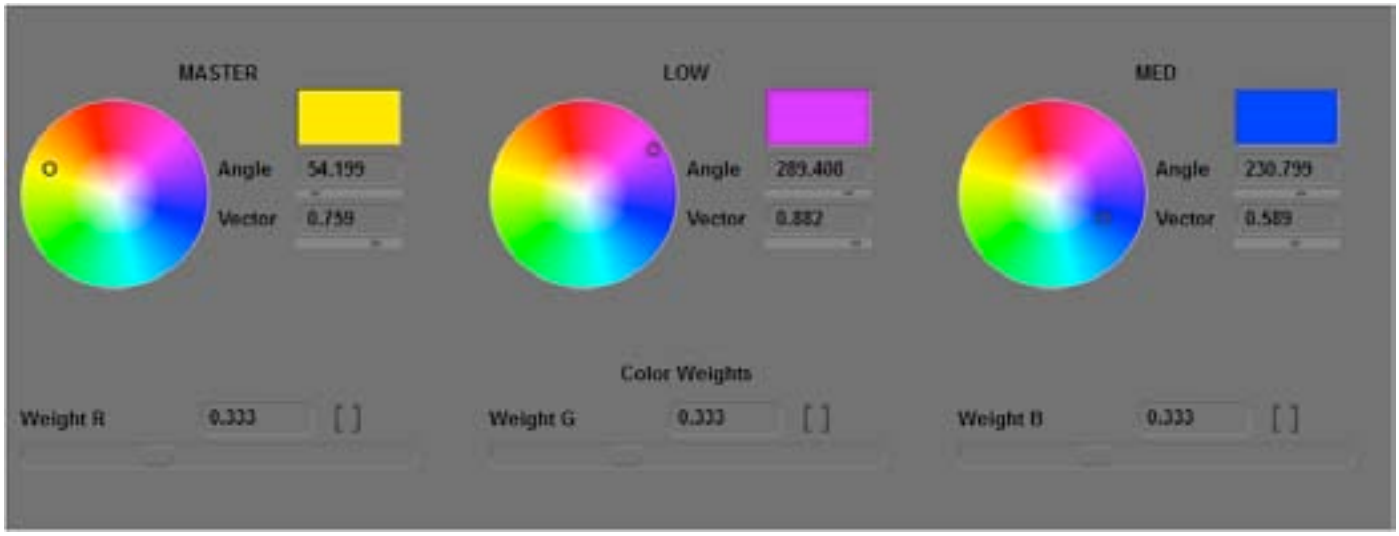
Thermograph Control Panel

4.3.31. TINT

Adjust incoming image color in bright/median and dark tones of an image, and RGB color space weight to achieve a desired tint.

Parameters:
Master – adjust overall tint of an image
Low - adjust image tint in darker tones of an image
Med - adjust image tint in median tones of an image
High - adjust image tint in brighter tones of an image
Weight R/G/B – set color weight in an image in R/G/B channels

Tint Preview



Tint Control Panel

4.3.32. WHITE BALANCE

Allows to fine tune and adjust white balance of an incoming image to gain correct mixture of colors using a reference point.

Parameters:
Mode – Switch between Autolight/Automassive modes
Massive Percent - ???
White – set the white color reference point in RGB color space
Color Temp – set the color temperature in Kelvins
Color Tint – adjust color tint setting
Black Point – define black point value in an image
White Point – define white point value in an image
Master Intensity – Adjust color intensity in an incoming image
Low Intensity - – Adjust color intensity in darker tones of an incoming image
Medium Intensity – Adjust color intensity in median tones of an incoming image
High Intensity - Adjust color intensity in brighter tones of an incoming image

White Balance Example

White Balance Control Panel

4.4. LAYER menu operators

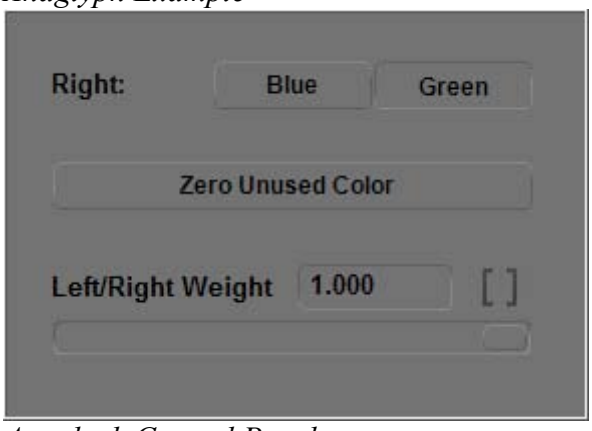
4.4.1. ANAGLYPH

Dual input operator, helps to create a stereoscopic 3D effect using two color layers (usually chromatically opposite like red and cyan) superimposed over each other to produce a depth effect – the produced image using „anaglyph“ glasses gives a perception of a three dimensional scene.

Parameters:

Right: choose the right eye color Blue/Green
Zero Unused Color – unused color value
Left/Right Weight – set weight of the left/right eye layer.

Anaglyph Example



Anaglyph Control Panel

4.4.2. CHROMA KEY

Operator enables keying of set color pixels (HSV color space) in an incoming image. Generated mask is located in the alpha channel of the outgoing image.

Color - defines a RGB space color around which operator keys image pixels
Multiply – decides if the incoming image should be multiplied by the generated mask
Invert – inverts all values of the generated mask
Replace – causes the generated mask to fully replace alpha channel of the image
Add - adds the generated mask to the image alpha channel
Subtract – subtracts the generated mask from the image alpha channel
Hue Range – sets keying range for the Hue component
Hue FallOff – sets of the smooth keying range for the Hue component
Hue Sharpness – modifies range of the smooth keying of the Hue component
Saturation Range - sets keying range for the Saturation component
Saturation FallOff - sets of the smooth keying range for the Saturation component
Saturation Sharpness - modifies range of the smooth keying of the Saturation component
Value Range - sets keying range for the Value component
Value FallOff - - sets of the smooth keying range for the Value component
Value Sharpness - modifies range of the smooth keying of the Value component

Chroma Key Example

Chroma Key Control Panel

4.4.3. DEPTH COMPOSE

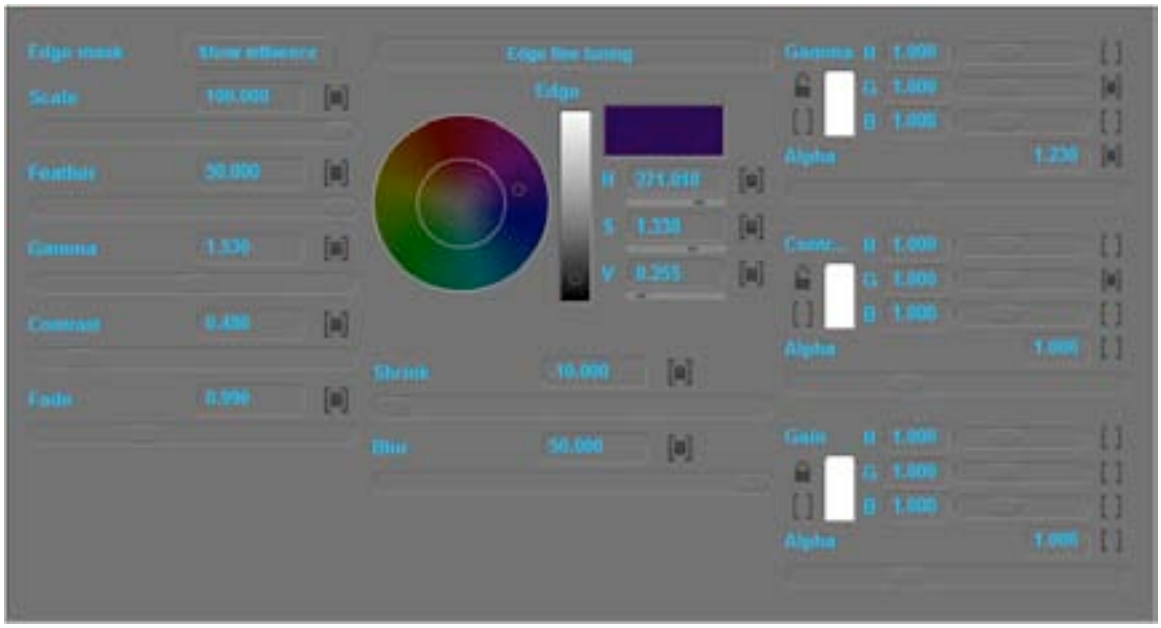
quadruple input operator

Depth Compose Control Panel

4.4.4. Edge Correct

Pardon the white space...Please visit www.lightstream24.com/support/ for an updated manual or go to www.lightstream24.com/forum/ to get help from Lightstream Staff.

Edge Correct Example



Edge Correct Control Panel

4.4.5. INNER MASK

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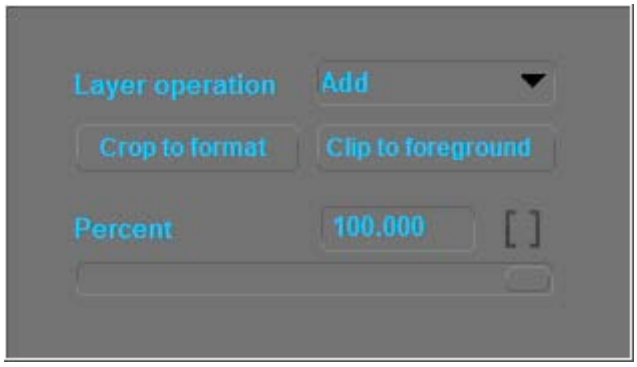
4.4.6. LAYER

Dual input operator – uses two incoming images to create a layered result.

Parameters:
Layer Operation – predefined incoming layer blending operations
CropToFormat – crops the outgoing image to a set format
ClipToForeground – decides which incoming image will define the format



Layer Control Panel

4.4.7. LUMA KEY

Affects all pixels in an image. Operator generates a mask in Alpha channel based on the brightness of pixels in an incoming image. Mask can be multiplied by incoming pixels.

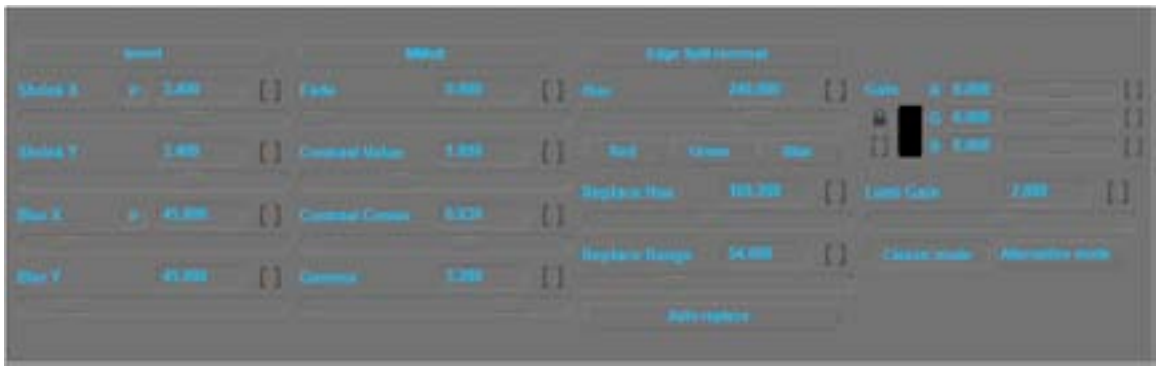
Parameters:
Low/High – sets bottom and top value of the keying range
LowSmooth / High Smooth – adjusts smoothing of the bottom and top edges of the keying range
Multiply – multiplies image pixels by generated Alpha channel
Invert – inverts Alpha channel values (negative)
Replace – completely replaces original alpha channel with the newly generated one
Add – adds generated Alpha channel to the original one
Subtract – subtracts generated alpha channel from the original one

Luma Key Control Pane

4.4.8. MASK CONTROL

Helps in modifying image mask (alpha channel) of an incoming image
Can be supplemented by using the Spill operator (with “edge spill” enabled)

Parameters:
Invert – turns on/off inverting values (negative) of the generated mask
MMult – multiplies generated mask by a set value
Edge spill Removal – turns on/off the Spill operator support
Shrink X/Y – sets the shrink element value in horizontal/vertical
Blur X/Y – sets the strength of the mask blur in horizontal/vertical
Fade – sets brightness of the generated mask
Contrast Value – sets contrast parameter value
Contrast Center – sets contrast center value
Gamma – modifies brightness of the generated mask using gamma correction
Hue – sets keyed color (Hue parameter in Spill Operator)
Red/Green/Blue – sets hue parameter value at 0/120/240
Replace Hue – sets color that should replace keyed color (ReplaceHue in Spill operator)
Replace Range - sets range or radius around a color from Hue parameter that should be changed
Auto Replace – turns on automatic setting of the Replace Hue parameter to value dependent on Hue.
Gain – sets image color shade when affected by Spill operator
Lumi Gain – affect image brightness when affected by Spill operator
Classic/AlternativeMode – two possible working modes of Spill Operator



Mask Control – settings panel

4.4.9. RANGE KEYER

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4.4.10. SPILL

Supplemental operator to Mask Control

Parameters:
Hue – sets keyed color
Red/Green/Blue – sets hue parameter value at 0/120/240
Replace Hue – sets color that should replace keyed color
Replace Range - sets range or radius around a color from Hue parameter that should be changed
Auto Replace – turns on automatic setting of the Replace Hue parameter to value dependent on Hue.
Gain – sets image color shade when affected by Spill operator
Lumi Gain – affect image brightness when affected by Spill operator
Classic/AlternativeMode – two possible working modes of Spill Operator

Spill Control Panel

4.4.11. WAND KEY

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4.5. TRANSFORM menu Operators

4.5.1. CAMERA SHAKE

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4.5.2. CHAOS

Pardon the white space...Please visit www.lightstream24.com/support/ for an updated manual or go to www.lightstream24.com/forum/ to get help from Lightstream Staff.

4.5.3. CLONER

Pardon the white space...Please visit www.lightstream24.com/support/ for an updated manual or go to www.lightstream24.com/forum/ to get help from Lightstream Staff.

4.5.4. CORNER PIN

Pardon the white space...Please visit www.lightstream24.com/support/ for an updated manual or go to www.lightstream24.com/forum/ to get help from Lightstream Staff.

4.5.5. CROP

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4.5.6. DISPLACE

A dual input operator – displaces incoming pixels with given displacement map (2nd incoming image). Alpha channel from the displacement map is a displacement vector for a corresponding picture pixel in the incoming image.

Parameters:

Direction X/Y – displacement strength in horizontal and vertical
Strength – displacement strength factor
Enlarge – displacement effect strength
Gradient Kernel -
Bend -

4.5.7. FIT

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4.5.8. FLIP

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4.5.9. MIRROR

Pardon the white space...Please visit www.lightstream24.com/support/ for an updated manual or go to www.lightstream24.com/forum/ to get help from Lightstream Staff.

4.5.10. PAN

Pardon the white space...Please visit www.lightstream24.com/support/ for an updated manual or go to www.lightstream24.com/forum/ to get help from Lightstream Staff.

4.5.11. RESIZE

Pardon the white space...Please visit www.lightstream24.com/support/ for an updated manual or go to www.lightstream24.com/forum/ to get help from Lightstream Staff.

4.5.12. ROTATE

Pardon the white space...Please visit www.lightstream24.com/support/ for an updated manual or go to www.lightstream24.com/forum/ to get help from Lightstream Staff.

4.5.13. SCALE

Pardon the white space...Please visit www.lightstream24.com/support/ for an updated manual or go to www.lightstream24.com/forum/ to get help from Lightstream Staff.

4.5.14. SCROLL

Pardon the white space...Please visit www.lightstream24.com/support/ for an updated manual or go to www.lightstream24.com/forum/ to get help from Lightstream Staff.

4.5.15. SPHERIZE

Pardon the white space...Please visit www.lightstream24.com/support/ for an updated manual or go to www.lightstream24.com/forum/ to get help from Lightstream Staff.

4.5.16. STABILIZE

Pardon the white space...Please visit www.lightstream24.com/support/ for an updated manual or go to www.lightstream24.com/forum/ to get help from Lightstream Staff.

4.5.17. TILE

Pardon the white space...Please visit www.lightstream24.com/support/ for an updated manual or go to www.lightstream24.com/forum/ to get help from Lightstream Staff.

4.5.18. TRACK

Pardon the white space...Please visit www.lightstream24.com/support/ for an updated manual or go to www.lightstream24.com/forum/ to get help from Lightstream Staff.

4.5.19. TRANSFORM

Pardon the white space...Please visit www.lightstream24.com/support/ for an updated manual or go to www.lightstream24.com/forum/ to get help from Lightstream Staff.

4.5.20. TWIRL

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4.6. ADD menu Operators

4.6.1. DEFLICKER

Helps minimize the occurrence of “flickering“ in image sequence

Parameters:
Intensity – sets operator intensity

Deflicker Control Panel

4.6.2. DEINTERLACE

Removes interlacing form the incoming image sequence with interlacing

Parameters:

UpperField/LowerField – in affected operations – chooses the appropriate pixel field
Restore Quality -
Merge Fields – uses both pixel fields
Interpolate – uses chosen pixel field (interpolates)
Replicate - uses chosen pixel field in replication

Deinterlace Control Panel

4.6.3. INTERLACE

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Interlace control Panel

4.6.4. SHADOW –

Adds a shadow to the existing incoming image. Shadow shape is defined by Alpha channel of an incoming image.

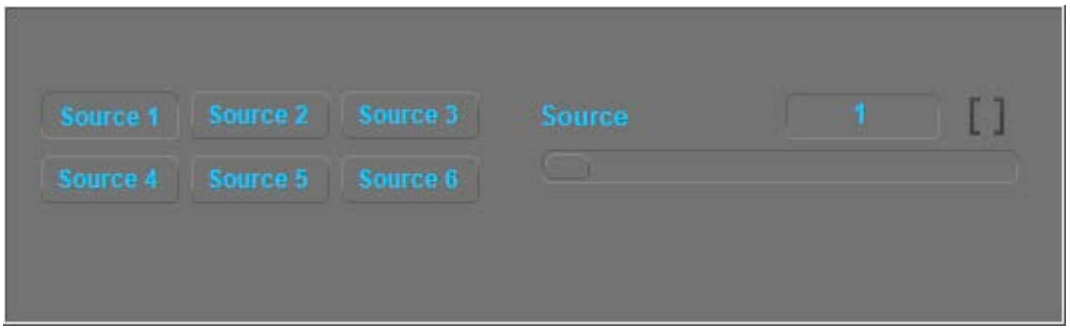
Parameters:

Translate X/Y – decides the shadow shift in horizontal (X)/vertical (Y)
Light Distance – sets the distance from the light source to the object throwing the shadow
Softness X/Y - causes blurring of the shadow in horizontal (X) or vertical (Y)
Opacity – sets intensity of the shadow
Color – define shadow color (RGB color space)

Shadow Control Panel

4.6.5. SWITCH

Pardon the white space...Please visit www.lightstream24.com/support/ for an updated manual or go to www.lightstream24.com/forum/ to get help from Lightstream Staff.



Switch Control Panel

4.6.6. TIMECODE

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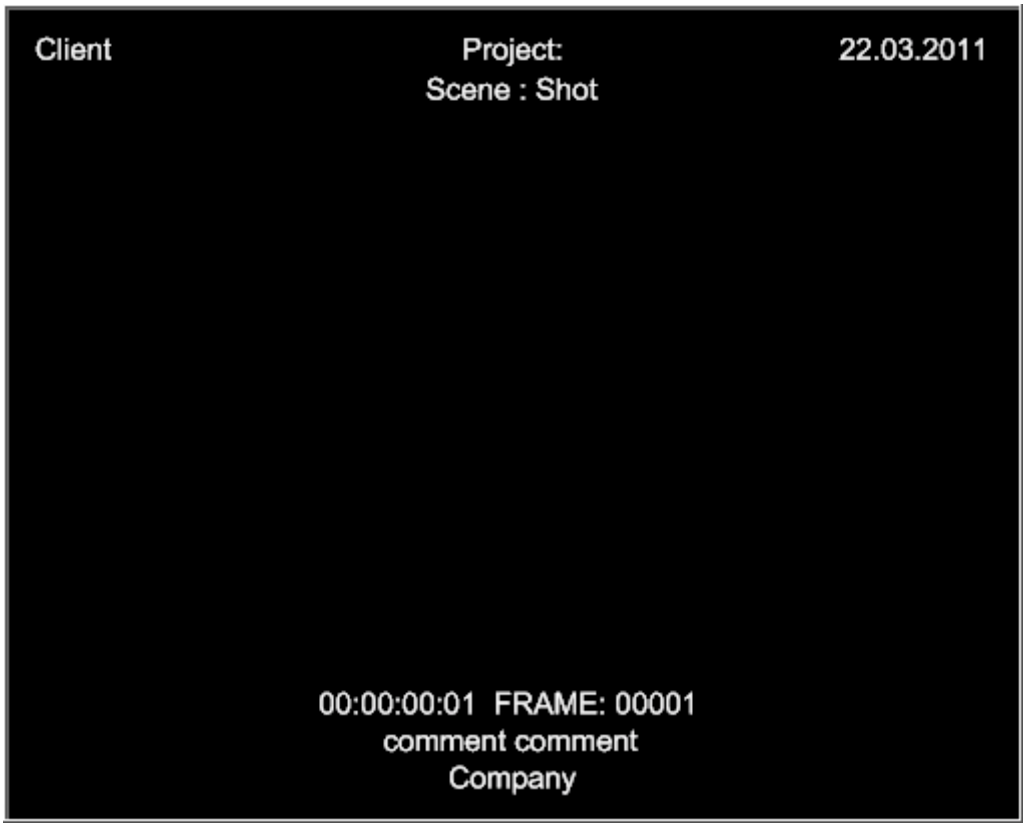

Timecode Control Panel

4.6.7. TIMEMASTER

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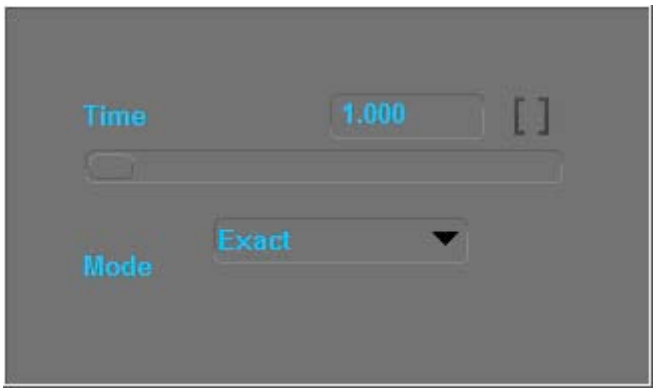

Timemaster Control Panel

4.6.8. TIMETRAILS

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Timetrails Control Panel

4.6.9. VIGNETTE

Creates a frame around the picture. Consist fo an internal and external frames which have a smooth fading transition between them. You can add color to the area outside the frame (with adjustable color opacity). A „Vingetting“ effect known to photographers.

Parameters:

Inner/Outer Radius –length of half the side of the inner/outer frame
Center X/Y – frame center location
Scale Inner X/Y – scale of width (X) /height (Y) of the inner frame
Scale Outer X/Y - scale of width (X) /height (Y) of the outer frame

Vignette Example

Vignette Control Panel

4.6.10.

5. HELP/FAQ

5.1. If you need help

5.2. FAQ

5.3. Known issues

a. Element Hierarchy/Priority/
In SOLAR there is more than one way to manage your project elements and add effects to yor material [outside basic tree view], we use the following hierarchy:

i. ***Subproject*** *is a basic unit in SOLAR workflow – editable in Tree View , Subproject Timelime and Global Timeline– [the resulting output is defined by the Broadcast operator]*

ii. ***Global Tree –*** *takes input from subprojects operators*

iii. ***Global Timeline –*** *unified representation of your project*